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THE FALLACIES OF HOPE.

WE are for ever balanced on the scales of Hope and Disappointment, and, according as the balance weighs down in one direction or other, our outlook on the material and mental world changes, and it is sometimes of interest to ask ourselves whether, with all our effort, we are advancing, and whether an advance in some branch of activity, more especially in that of art, is possible under the conditions of the modern world.

Unmitigated pessimism leads to the stultification of mental activity, as with the realisation of the uselessness of effort the inclination to act necessarily ceases; but just as some of the most violent poisons, taken in small doses, are among the most valuable of medical remedies, so may the contemplation of the reasons we find for forming a pessimistic view of future possibilities serve a useful purpose; firstly, because it cuts away the false sentiment with which we deceive ourselves; and, secondly, because on the law of averages movement in any one direction creates a reaction in the contrary one.

Disraeli once described the English race as having "stopped short at comfort and mistaken it for civilisation," a phrase which might be taught and explained in our schools with advantage to future generations, because it really represents, we are convinced, the inward ideal of many of our comfortable platitudinarians and proletariat leaders of to-day. In the field of art we may say that the greater part of the design of to-day might be described as the attempt to express a wholly worthless ego on the pages of Time, and so to manipulate opinion and engineer criticism that the sham is enabled to pass muster for a time to the advantage of the artist.

What we really desire is well put by John Silver in Stevenson's "Treasure Island" when he says:—"Ah, but I've lived easy in the meantime, never denied myself o' nothing heart desires, and slep' soft and dainty all my days but when at sea!" And if to reach this desirable consummation many play to the gallery, who is to blame them, for do not all of us, except a small minority, live in glass houses? Even the critic, too, who would like to be described as living for art's sake, all the while lives on what he can make from writing of art, and if he is guilty of histrionic effects in the pursuit of his aim, "that of living well and never denying himself his heart's desire," we need not blame him for it, for most of us are doing the same thing.

And for a similar reason we may be justified in doubting the absolute sincerity of the sonorous periods in which we are asked to believe that the critic lives for art and art alone. We condemn the charlatan, sometimes forgetting that there is in most of us a trace somewhere or other of the very fault we condemn; the one unpardonable thing is to be found out, for it is the mark of failure.

Much of our humanity and hatred of suffering is simply the outcome of a strong wish to have our feelings moved by what is pleasant rather than by what is not, for which reason battle pictures do not appeal to our public if they show war as it is; if they are to pay they must be carefully edited and bound with gold edges, so to speak. Our belief in our power as a nation of "muddling through" is due to a complete and comfortable determination to make no sacrifices which are not absolutely forced from us, and we find it easy to believe that a "little British army goes a damned long way," when we are reluctant to fight ourselves or pay the taxes which an adequate army would entail.

And we may well ask ourselves whether "we," the inheritors of a great Empire, which has fallen to us largely by chance, have a greater interest in the arts of architecture, painting, sculpture, or music than we have in morals or in patriotism, or whether the greatest crime of all is not that of speaking the truth at inconvenient times—and the convenient time, it may be said, never arises. It is quite true that we like to have sumptuous and magnificent buildings erected at no cost to ourselves—that is, unless we live in the areas which have to pay the rates out of the proceeds of which they are erected; but for the most part we are abundantly satisfied if we understand that the halls and corridors are lined with costly marbles and that the seats of the mighty are properly upholstered and made of choice woods. Such details as an unsatisfactory skyline, or the trivial fact that the building is out of scale with its immediate neighbours, are left unnoticed, till the critic, foreseeing a subject for his pen, uses it to his own glory, and to emphasise the fact that he, like the Pharisee, is not as other men.

We use in our public buildings to-day a wealth of costly material and elaborate detail which would have astounded Wren and Chambers, but we seldom come within measurable distance of the quiet dignity and sense of proportion shown in their work; and when in our humanity and love for mankind we tear down slums in which are to be found quiet and picturesque Georgian detail, and replan such districts, we fill them with incongruously-designed buildings, many of which are primarily and chiefly permanent advertisement hoardings, having this disadvantage that they cannot be done away with and replaced.

To a great extent the habit of working in towns and living outside them may be responsible for the utter indifference displayed by most people for their appearance, for all of us not in need of education can escape the sight of the sins we commit against good taste and reason, leaving it to the dwellers in the slums to appreciate the results.

The client wants an advertisement and the architect wishes to please his client, and between them the appearance of a town is frequently ruined; and the process is a continuous one, each decade asking for something bigger and more startling than the last, the successful architect endeavouring to gratify the wish.

As an antidote to the manufacturing town we now have the garden suburb, where we can play at the simple rustic life, calling our roads by old Saxon names, and inhabiting picturesque-looking beehives which contain the requisite room somewhere, and for the rest look like cleaned-up and brightened cottages. We can have our village hall to look at and to benefit the people, and at the same time enjoy the music-hall by means of an easy train journey, and we can read the latest French literature in an antique chair in a library whose door opens with an oaken latch. In short, we can, if we like, play a part in two worlds, enjoying both, but being sincere in neither *rôle*.

We are told that the sins of the fathers are visited on the children unto the third and fourth generation, and unfortunately in matters of architecture this is literally and entirely true.

Our Government art schools are, as authorities tell us, little more than manufactories for the production of art masters, who themselves have no training as designers and are not in touch with the reality of the arts whose processes they teach, with the result that they are of little or no use to those engaged in the actual practice of the applied arts. We are simply creating a race of industrious and careful imitators, whose work is as useful as the solution of a puzzle or anagram to mankind at large.

Our sculptors are chiefly occupied in making busts and private portraits, for sculpture, in the broader sense of the word, does not appeal to a public which is chiefly concerned in procuring as much luxury and pleasure for itself as it possibly can, and which only works hard at removing any inconvenience and impediments which stand in its way.

Modern pictures are often beautiful renderings of touching and sentimental scenes which we know are untrue to life, but which make us feel comfortable, or are the restless striving after notoriety reached by any means which may be trusted to startle the public.

To read the modern literature dealing with art alone, as we have said, would suggest that we are really in earnest in our quest for ideals, but that is the writer's *métier*, and, obviously, the best way in which he can obtain what he, too, desires.

We do not mean to assert that there are not many sincere writers and critics, but we do say that we believe they are in a minority, and that the majority, as Mrs. Poyser puts it in "Adam Bede," talk in the same way as a clock may strike at the wrong hour, not to tell the time, but because it has something wrong with its inside.

Stevenson's artist in "The Wreckers" is a familiar type among us—the man who loves art much, but "restaurant fat" more.

We do not know, and have not the mantle of the prophet which would enable us to say, whether the Renaissance of a tradition is a possibility to-day, or whether the new industrial conditions which have come into being in the last 150 years are compatible with the growth or even existence of art which is worth the name; but in our pessimistic moods we are inclined to think that the modern world may outgrow art as it has outgrown the picturesque fables and beliefs of antiquity, and, if this is so, we may ask ourselves what remains.

The past remains, and the memory of the past, of which it may be said, "Age cannot wither her, nor custom stale her infinite variety"; and, though modern Japan discards her ancient art and builds herself hideous replicas of European buildings, we can yet remember and appreciate her art, and all we can remember and enjoy is our heritage.

And if modern art be indeed an impossibility, it by no means follows that we need think it so. Nothing is more certain than our capacity for deceiving ourselves, and, having that faculty, the illusions of life may be more to us than its realities. Why should we disturb them? For must not all of us own that if we do play with things we can play so earnestly that the unreal becomes the only true source of pleasure; and we can console ourselves with the conviction that we are but instruments of destiny, links between a past which we enjoy thinking of, and a future which may have unknown gifts in store for us.

Happiness arises out of most forms of action as long as the process is a congenial one and the capacity for enjoying grows with what it feeds on.

Knowledge, if we could arrive at it, might not bring pleasure, but would probably only enable us to say with Faust, "We seek in vain the knowledge each day needs: the knowledge of what never can avail us we attain."

NOTES.

The R.I.B.A. and the Proposed Changes.

We understand that feeling about the changes proposed by the Council of the Institute runs somewhat high, and we have received an article dealing with the subject from a contributor which we are compelled to hold over till next week, but which we believe represents the point of view of many of the Associates. The underlying statement appears to be that the latter consider they are being asked to make sacrifices which would impair their relative status in the Institute without the advantages to be gained by such a sacrifice being made sufficiently evident to them. We would say at once that we hope that, if it can be made evident that Registration is an impossibility, the reasons for the conclusion may be made so clear that the movement will be definitely and finally dropped. Divisions between architects will not tend to give us a better standing in the eyes of the public if they are emphasised, and we should be sorry to see the Institute supporting one policy and the Society another, nor do we see why this should be necessary since the reasons which render Registration possible or impossible must be common to all who can think and understand, and united action should follow in either case. Differences of opinion are useful and interesting if they affect details, but in the case of broad principles they are, we think, greatly to be regretted.

London University.

We have all along contended that London University should be worthily housed, and we are quite of the opinion that a building of the scale, spacious lay-out, and magnificent position of Somerset House is the least that the dignity of the University demands; but for all that we doubt the wisdom of the proposal to acquire Somerset House for this purpose. There are many practical objections to this suggestion, and, from our point of view, the architectural one is fatal. A building should both serve and express its purpose. If architecture means anything at all in our national and civic life, the University of London should be housed in buildings specially designed for it, which would have a character exactly expressive of the nature and functions of the University. Somerset House was not specially designed for a University, therefore it does not possess this character. As the home of a University it would be a sham. The proposal to adapt it to this purpose is only another illustration of the lack of appreciation of the essentials of architecture, and suggests that, to the general public, one imposing building is as good as another—so long as it is imposing. Without endeavouring to apportion exactly the blame, we cannot lose sight of the fact that the utterly characterless and unexpressive buildings erected during the last half-century must have had a prejudicial effect on public taste. A change for the better, however, may be noted in the proposal put forward by the Improvements Committee of the London County Council in favour of new buildings on the south side of the river. We have frequently called attention to the possibilities of this position, and are glad to see that it has been seriously considered, but we hold no special brief for it. The location of a University depends on many considerations, not strictly architectural, and on these we would not wish to dogmatise. But wherever it is placed it should be housed in buildings specially designed for it. Not only would they serve the practical purpose of the University with greater exactness, but should result in a worthy addition to the architectural glories of London.

Prehistoric Remains.

We note with satisfaction that by an Order in Council, published in the *London Gazette*, it is prescribed that the benefit of the Ancient Monuments Consolidation and Amendment Act shall extend to Stonehenge, Wayland's Smith's Forge, and other prehistoric remains of a similar character which are scheduled in the Order. That there was ample need for such action is proved by the case recently referred to in the *Times* by Professor Baldwin Brown, where a contractor carrying out work for the Badenock District Committee on the Great North Road between Perth and Inverness used the stones of a prehistoric cairn for road metalling. This "disgraceful act of vandalism," as Professor Baldwin Brown rightly designates it, suggests not only laxity on the part of the local authority concerned, but also an ignorance or indifference on that of the landowner from whom the contractor presumably purchased the stone, which, we fear, may be too often characteristic of those who are the technical owners of many of the relics of the past life of the nation. Against such ignorance or indifference the better known examples have always been protected, to some extent, by public opinion. It is well that such protection should now be made absolute, but the real danger seems to threaten those less well known but, possibly, of even greater archæological value. Considering the amount of ignorance on this subject still prevalent in the remoter country districts, complete protection can hardly be assured to our prehistoric monuments until every known example is catalogued and definitely placed on the list to which this Order applies.

Statues in Public Gardens.

Writing to the *Times* on November 17, Mr. J. H. Whitehouse, M.P., protests against the erection of Rodin's great group, "The Burghers of Calais," in the Victoria Tower Gardens. We agree with him in thinking the site unsuitable, though for quite different reasons. Mr. Whitehouse feels that the statuary will interfere with the view of the Victoria Tower as seen from Lambeth Bridge. We deplore the fact that the Houses of Parliament will prevent the group being seen from lower down the river, or indeed from anywhere except a short piece of the opposite embankment. The writer goes on to make it clear that he objects to any statues in any parks because of the sacrifice of space which they entail. Carried to its logical conclusion, this view would result in the draining of the Serpentine and other ornamental waters to give more space. But it is in his views as to the proper destination of works of art that Mr. Whitehouse seems to us most misguided. Speaking of this particular work of art, he says, "Its interest is mainly artistic and technical. . . . It is essentially a museum piece, and could be appropriately placed at South Kensington." We do not know what is meant by "technical interest," but to recommend that it should be immured in a museum because it has artistic interest seems to us to indicate an utter ignorance of the purpose of art, an ignorance, we are sorry to have to say, of a peculiarly British type. The average Englishman regards art as something quite divorced from life, something one goes to special places to see and comes away from with a headache—a thing of no real importance, but occasionally useful as a subject for polite conversation. And so Mr. Whitehouse wants to banish Rodin's splendid group and leave a few more square feet for children to romp on. We think that it would do the children more good to stop romping for a minute and look at a real work of art.

MR. W. CURTIS GREEN (President) took the chair on Monday night at No. 18, Tufton-street, when an ordinary general meeting of the Association was held.

Mr. G. L. Elkington announced that the next meeting of the Camera, Sketch, and Debate Club would be held on December 18, when papers will be read entitled "The Present Relation of the Three Fine Arts," at 8 p.m.

New Members.

The following new members were elected on the motion of the President:—Mr. G. R. Galsworthy, Gloucester-terrace, W.; Mr. R. J. Jezzard, East Molesey; Mr. J. J. A. Murphy, Bernard-street, W.C.

Votes of Thanks.

The President proposed, and it was agreed, that votes of thanks be given to Mr. Lawrence Weaver for presenting "Gardens Old and New" (two volumes) and "In English Homes" to the Association, and to Mr. W. H. Ward for presenting a collection of negatives.

THE ARCHITECTURE OF PORTUGAL.

Mr. W. H. Ward, M.A., A.R.I.B.A., then read the following paper, entitled "The Architecture of Portugal":—

"Portugal, like most of the lesser States of Europe, has never stood in the direct line of development in Western civilisation and art; but its civilisation and art is not for that reason without interest. Like other small countries, it has borrowed largely from greater neighbours, but has modified in borrowing in accordance with its national bent, and in obedience to the various peculiar influences under which it has come from time to time. From one point of view both the architecture and the language of Portugal may be regarded as merely provincial varieties of those of the Iberian Peninsula as a whole, sharing with Aragon and Navarre, Leon and Castile and the other Spanish kingdoms not only the language and heritage of Rome, but also the stimulus of a national struggle against the Moors and contact with a brilliant Mohammedan civilisation. But the fact that the Portuguese have, with the exception of short interludes, succeeded in maintaining their independence as against the rulers of Spain also raises their language and arts to something more than provincial importance, while the peculiarity of their geographical position, shut off from all land neighbours but one, and forced to expand, if at all, by way of maritime enterprise, has brought them into contact with very varied and, in some cases, very remote civilisations, and given them the opportunity of playing a part in world history out of proportion to their numbers. It was they who discovered the sea route to Asia; their colonial empire rivalled those of Spain and England, and is still considerable; and they possess, in Camoens, the author of "The Lusiad," one name in literature of European fame, which is more than can be said of many of the more highly-organised lesser States, such as, say, Sweden, Holland, or Switzerland.

History of Portugal.

A brief outline of the history of Portugal will help to make her architecture intelligible. The territory which now bears that name was conquered by the Romans in the second century B.C., and remained under their rule till the barbarian invasions of the fifth century A.D. At the end of the sixth it was absorbed in the Visigothic kingdom of Spain, with which it was conquered by the Moors early in the eighth. The history of the State of Portugal begins with the grant of the Countship of Portucalia, at the mouth of her Douro, by Ferdinand of Castile to his son-in-law, Henry of Burgundy, in 1095. Henry's son Alfonso took the title of King in 1139. The dynasty of Burgundy lasted for nearly 300 years, during which a constant fight was kept up with the Moors, who were gradually driven further and further south till the whole of the present territory was won, though large numbers of the Moorish population remained and accepted Christianity.

In 1383 the House of Burgundy became extinct in the legitimate male line, and, in order to avoid being absorbed in Castile by the marriage of the heiress, Dona Brites, the Portuguese elected an illegitimate prince, John I. of Aviz, as king. He defeated the Spaniards in the decisive battle of Aljubarrota and strengthened himself by alliance with England and marriage with Philippa of Lancaster, daughter of John of Gaunt. Under the House of Aviz Portugal reached her period of greatest prosperity and success. Early in the fifteenth century Prince Henry the Navigator promoted exploration and overseas conquest in Africa. Later on the Cape of Good Hope was rounded, trade opened up with the East, and a colonial empire was founded both in the East Indies and Brazil. The reign of Dom Manoel the Fortunate, the contemporary of Francis I. of France and of Henry VII. and Henry VIII. of England, a magnificent patron of arts and learning, and, in fact, a typical prince of the Renaissance, but more virtuous and disinterested than most, saw Portugal at the summit of her fortunes. After him the Court grew priest-ridden and helpless. The kingdom fell a prey to Philip II. of Spain in 1580, and, becoming involved in his war with Holland, lost her naval power and many of her colonies to the Dutch. Independence was recovered, the house of Braganza was placed on the throne in 1640, and the long-standing alliance with England was revived, which proved more profitable commercially to us than to Portugal. This alliance, however, by giving us a foothold on the Continent, became the means of delivering Europe from the yoke of Napoleon through Wellington's Peninsula campaigns. The subsequent career of Portugal, whether under the monarchy or the republic, has been neither glorious nor remarkably progressive, though by no means uneventful.

Roman and Moorish Architecture.

Though Portugal was for 600 years a part of the Roman Empire, and has remained Latin in language, the remains of Roman architecture are scarce and not very important. The temple at Evora is the best preserved. The interruption of the barbarian and Mohammedan invasions was so complete that no independent development of a Romanesque style was possible. The Visigoths were not builders, although they had a fine decorative art of their own, as may be judged from the Visigothic jewels in the Cluny Museum in Paris. It was otherwise with the Moors, who built largely and well. Few buildings, however, actually dating from the period of the Moorish dominion have survived, and they consist chiefly of fortifications, such as the ruined Castello dos Mouros on the heights above Cintra, but, on the other hand, there are a considerable number of buildings built or adorned by the Moriscos, or converted Moors, for their Christian conquerors, who had almost everything to learn in the way of civilisation from the foes they had overcome. Moorish influence in structural methods and decoration thus left an enduring mark on Portuguese architecture and crafts, to which I shall return later.

Romanesque and Gothic.

Side by side with Moorish work came the introduction of various phases of Romanesque and Gothic from abroad, principally from France and partly through the medium of Spain; each phase came independently from outside, as happened with Gothic in Italy, and did not develop each out of the last, as was the case in France and England. The result of this is that types often appear in Portugal half a century or even more later than elsewhere—sometimes when they were already obsolete in their native countries—and that types belonging to different periods at home appear simultaneously in the same Portuguese building—a fact which often makes Portuguese mediæval architecture an extremely puzzling one to date. In the course of the fourteenth and fifteenth centuries the influence of England, with which there was a close alliance, and of the Low Countries, and even Germany, with which there was much commercial intercourse by sea, is often traceable side by side with that of Spain and France, while through all runs the Oriental strain.

"Manoelino."

Towards the end of the fifteenth century Portugal developed her one definitely national style, called Manoelino, though it began rather earlier than the reign of Dom Manoel. It consists essentially in an extremely exuberant and naturalistic form of late Gothic, analogous to the Flamboyant of France and the contemporary Gothic of Germany, with certain Moorish reminiscences. But soon there were grafted on to it motives, derived from Indian architecture on the one hand and the Italian Renaissance on the other, the combination making a very curious and decorative, if over ornate, result. From the sixteenth century onwards architecture ran much the same course in Portugal as in other Southern countries. The delicate and fanciful Early Renaissance was followed by a severer Palladian phase, and that by various types of Baroque in the seventeenth and early eighteenth centuries, and those again by a more correct but duller Classic in the later eighteenth, while the modern architecture of Portugal, if it has any recognisable tendency at all, seems to hesitate between a revival of "Arte Manoelina" and French "Art Nouveau."

To illustrate these remarks, I propose now to give a short account of some half-dozen of the most important architectural monuments of Portugal, such as the collegiate churches of Alcobaça, Batalha, and Belem, the old Cathedral and the church of Sta Cruz at Coimbra. But before doing so I think it will be interesting to trace the effects produced by Moorish traditions of building and decoration on Portuguese architecture.

Moorish Traditions.

The Portuguese borrowed from the Moors a peculiar method of walling, and forms of chimneys, arches, windows, and battlements. Most of these are found in the Palace of Cintra. The older walls there are built in the Moorish method of rubble stonework, strengthened at intervals by the introduction of bands of brickwork three courses thick. The chimneys over the kitchens form huge cones not unlike the Kentish oast-houses, rising high above the roofs to carry off the fumes of cooking, and originally covered externally with a decoration of glazed tiles. Such chimneys are still found in Morocco at the present day, and similar ones of the seventeenth century occur in the monastery of Alcobaça, where they rise from cast-iron columns in the centre of a marble-lined kitchen, through which a clear brook runs in marble channels. The Moorish form of arch, of horseshoe shape, or with cusps, with a cusp resting on the capital, is pretty frequent, as also are the Moorish type of window, consisting of two cusped arched lights, often stilted, rising from slender shafts, sometimes twisted, with abaci moulded on the side but not on the face, the whole being enclosed in a rectangular moulded frame. The Moors also used various types of battlements, serrated or of other peculiar forms, and the strange battlements of the fifteenth-century castle at Belem, in which the merlons take the form of shields, is perhaps a relic of these. Moorish tradition is also probably traceable in the curious tracery of some of the Portuguese Gothic churches. It does not grow out of the planes of the moulded window jambs, as in northern Gothic, but consists of geometrical patterns set in the openings and unrelated to its mouldings, being derived probably either from the pierced wood-screens familiar in Cairene work, or the Oriental method of filling window-openings with patterns of brightly-coloured glass set in plaster.

Again, the Moors were skilful carpenters, and excelled in richly-wrought woodwork. They had a peculiar method of constructing timber roofs with coupled rafters connected by crossed strips of wood arranged decoratively, and they sometimes covered the whole inner surface of the roofs with a decoration of interlacing laths in

star and other patterns richly coloured. An example of this occurs in the Palace chapel at Cintra. The Portuguese carried on this tradition for centuries, substituting moulded panel-work of various designs, but usually retaining the colour, as in the Hall of Degrees in Coimbra University, and in the Halls of the Shields, of the Magpies, and of the Swans at Cintra.

The Moorish fondness for elaborate cabinet-work also survived in the church screens and railings, with turned wood balusters of the Renaissance period, such as those of Sta Cruz and the new cathedral at Coimbra, and perhaps in the extraordinarily worried decoration of some of the Baroque churches of the type known in Spain as Churrigueresque, such as that of São Francisco at Oporto.

Tiled Linings.

Perhaps the most obvious and enduring effect of Moorish tradition lies in the use of tiled linings. The manufacture of coloured glazed tiles in the East is almost as old as history. It was introduced into Spain by the Arabs, perhaps as early as the eighth century, but no existing examples can be proved to be earlier than the thirteenth. Their beauty of colour, and the cool expanses of floor and wall surface which they provide, so grateful in the torrid heats of summer, earned them a wide popularity in the Peninsula which they have ever since retained. In the earliest examples the tiles are self-coloured—either bluish-green, brown, dark violet, or milky-white, and of various shapes, and they are laid in geometrical patterns. Later on a process was invented of producing a pattern on single tiles, by cutting a design in incised lines on a wooden stamp, which was reproduced in raised lines on the soft clay; colour was then run into the intervening spaces. The designs were usually of the star type, but grotesque animals and flower and foliage motives were sometimes introduced; a little later embossed tiles, especially in vine patterns, came into use. At Cintra are several rooms decorated with high tile dados of some of these kinds of tiles, some of them being finished with cusped and crocketed crestings. The tiles used are mostly self-coloured, or nearly so; but the old cathedral at Coimbra exhibits fine examples of patterned tiles of the fourteenth century clothing the walls, and, till the recent restoration, also the piers with a bewildering variety of richly-coloured devices, producing a tapestry-like effect.

At the Renaissance the star patterns were supplemented by scroll and other flowing ornamentation, and the range of colour became more varied, being painted on the tiles without bounding ridges. The patterns are sometimes continuous, covering the whole walls, as in the seventeenth-century sacristy of Sta Cruz, or enclosed in architectural borders, as at São Amaro at Alcantara. About the same time lustre tiles—first pale gold and later red gold—also came into use.

But after the expulsion of the Moors in 1609 the art of the tile-maker gradually declined, the colours lost in brilliance, and their range became restricted to blue designs on white grounds, with purple and yellow as occasional variants. The blue and white technique seems to have arisen simultaneously at Delft and in Portugal, and in each case seems to be the outcome of a desire to imitate Chinese porcelain, then becoming known in Europe.

Many of these tiles had a single flower vase of figure subject on each. But the practice of making large figure subjects in ornamental borders, with a portion only of the total design painted on each individual tile, came in in the sixteenth century and continued till the early nineteenth. An example occurs in the nave of Sta Cruz at Coimbra.

Tile linings were applied, not only to rooms, but to cloisters, tanks, steps, garden seats, and even roofs, but their use for entire house-fronts, now common in Portuguese towns, seems to be no earlier than the nineteenth century; and that is, it came in when both the colour and the design of the tiles had sunk to insignificance.

Christian Architecture.

We may now turn to the Christian architecture with which these various Mohammedan traditions and influence are interwoven. The earliest examples are naturally found in the north, and consist of an exceedingly simple and rude type of Romanesque churches of the eleventh and twelfth centuries, with rectangular naves and chancels, and occasionally a northern porch. After the foundation of the cathedral of Santiago de Compostella, which was probably modelled on S. Sernin at Toulouse, a more developed basilican plan, with a transept projecting beyond the aisles and apses on the east side of it, became established as the national type, varied in a few of the more important later Gothic churches, such as the cathedral of Lisbon by a *chevêt* with radiating chapels.

Old Cathedral at Coimbra.

An admirable example of the Romanesque style, though dating from quite the close of the twelfth century, is the old cathedral or Se Velha at Coimbra, with its austere fortress-like exterior almost unpierced by windows and crowned by battlements, and its long, dimly-lit nave, culminating in the glory of an apse rich in carving and gilding; all the light comes from the high west window and two in the domical lantern at the intersection, which, externally, is still clothed with a mosaic of self-coloured tiles; internally the aisle walls retain the patterned tile lining which has been stripped from the piers. The latter have half round engaged shafts with capitals of Byzantine character. There is no clerestory, and the barrel-vault of the nave is buttressed by half-barrel-vaults over the quadripartite aisle vaults. It is curious that the Portuguese, who in the early stages were very timid in their attempts at vaulting, eventually developed some of the boldest and more enduring vaults in the whole of Europe. The three apses of the old cathedral are enriched with altar pieces, probably the work of a colony of Flemish artists who were employed by Manoel the Fortunate. The central one is in wood, and consists of exuberant late Gothic canopy work gilded on a blue ground. Those in the side apses are in stone, and are Early Renaissance, executed by Flemings or Frenchmen. The beautiful font near the west end appears to be the work of Jean de Rouen—a Frenchman who came to Portugal about 1521, after having worked upon the monument of Cardinal of Amboise at Rouen.

The transition from Romanesque to Gothic has its finest example in Portugal—as it has in London—in a church of the Knights Templars. This circular, or rather polygonal, church at Thomar was built about 1165, and therefore probably earlier than the still fully round-arched cathedral at Coimbra.

Abbey Church at Alcobaça.

The most important building of early pointed architecture in Portugal is contemporary with the last two. This is the great Cistercian Abbey Church of Alcobaça, founded in 1165, and finished 1211, and begun at least by Frenchmen. In plan it is to a certain extent modelled on the mother church at Clairvaux, having a semi-circular aisled choir, with nine radiating chapels. But the rest of the church shows a wide departure from Northern practice. The Portuguese, left to themselves, were afraid of continuing the French vaulting system of the choir with its relatively slender piers and flying buttresses. They made the nave piers so excessive that they almost concealed the arches and buttressed the main vault by carrying up the aisle vaults and thick outer walls to the same level. The interior of this huge nave, the largest in Portugal, was once rich with stallwork and other embellishments of various ages, but all this was systematically destroyed by Massena's soldiers in 1809, and its gaunt grey perspective now contrasts oddly with the faded colours and tarnished gildings of the florid Baroque decoration of the choir, which, however, provides a not unpleasant splash of colour amid the gloom.

Cloisters.

The influence of Northern Gothic was for a long time very slight in Portugal, and the thirteenth century, such a splendid building age in Northern Europe, was almost barren there. Most of the earlier pointed buildings date only from the fourteenth century. To this period belong many of the beautiful cloisters which offer one of the great charms of Portuguese churches. They are not, as a rule, placed, as with us, on the south side of the church to catch the sun, but rather on the north to obtain shade, though sometimes also to the east or the west; and they are planted with palms and roses, flowering shrubs and creepers, and aromatic herbs set in box borders and refreshed with fountains plashing in marble basins. Alcobaça possesses one of these, which, though not begun till about 1310, would except for its national peculiarities pass in France or England as thirteenth-century work. Like most Portuguese cloisters, it is in two stories, the upper one being of a somewhat later period, and has a lavatorium or fountain-house, in which, for some unexplained reason, the curious polygonal fountain is set askew with the walls.

The fine Church of Sta Clara at Coimbra, now half-silted up by the floods of the Mondego, is another example of fourteenth-century building, which, from its massiveness and simplicity and the absence of tracery, looks as if it belonged to the thirteenth or even the twelfth. Much, too, of the picturesque Castle of Leiria and its beautiful ruined chapel was built in the fourteenth century by King Denis the Labourer, who earned his name by his unremitting efforts to reclaim large tracts of waste land and plant the sand dunes.

Altar Tombs at Alcobaça.

One of the first symptoms of Portuguese Gothic getting abreast of that of other countries is to be found in two beautiful altar tombs at Alcobaça, made about 1390, almost certainly by foreign and probably by French craftsmen. They are the tombs of Dom Pedro I. and his mistress, Inez de Castro, who was murdered in the garden near Coimbra, called in consequence the Quinta das Lagrimas, beside the romantic Fonte dos Amores. The effigies of the royal lovers lie facing one another on sarcophagi, whose sides are enriched with elaborate canopy-work. The sculpture is for its accomplishment unparalleled up to that time in Portugal, while the decorative portions, though embodying some favourite Portuguese motives, has none of the luscious barbarism of the later native style.

Sta Maria da Vittoria.

Dom Pedro's son was the last of the legitimate Burgundian line, and the opening of the era of the House of Aviz which followed was signalised from the first by a successful struggle for national independence against the Spaniards. Dom John III., whose wife was a granddaughter of our Edward III., and one whose sons was to be distinguished as Prince Henry the Navigator, determined to commemorate the glories of the national history and of his house by the foundation of the splendid church and monastery of Sta Maria da Vittoria, on the spot where the battle of Aljubarrota began, and hence known as Batalha. The church was begun in 1385, and the Royal mausoleum was completed in 1439. It is built of white limestone, which turns a golden yellow with age and stands in a valley surrounded by woods of pine and cork oak.

The plan is the traditional basilican one, with a transept and five apses beyond it. The use of such a plan disproves the tale that the design was obtained by Queen Philippa ready-made from England, and it is probably the work of a Portuguese, Affonso Domingues, who seems to have carried the eastern portion up to a considerable height. The remainder was carried out by one Huet, who succeeded him in 1402, and is said to have been an Irishman. The mixed characteristics found in the church make its origin a most difficult problem to unravel, and some of those which give it an English look may be due to other causes than English influence. For instance, the long lines of its balustraded and pinnacled roofs, which suggest a Perpendicular church or college chapel, may be only the outcome of the method of roofing common both in Spain and Portugal by covering over the vaults with a flat pavement of accurately-fitted stone slabs. But, further than this, the great western doorway strongly resembles the same feature at King's College Chapel, Cambridge, and internally the ridge rib in the nave and the lofty arcade, with no triforium to divide it from the clerestory, and the clustered shafts and the chapel are all English features. On the other hand, the great height of the vault, 106 ft. high and 25 ft. wide, the bases of the nave shafts and the square abaci of their capitals suggest French influence; other features are purely native. The south portal, with its great heraldic panel, is like Portuguese examples of much earlier date. The elaborate and minute tracery which fills some of the windows and divides up the lancets of the apses into panels is perhaps due to Moorish tradition, and is intended to block out the excess of light; an end which might have been attained by smaller windows. Of Moorish origin, too, are the cusped arches in the Founders' Chapel. This chapel is square externally, but its central space is octagonal,

and was formerly surmounted by an openwork stone spire like another attached to the north transept, and resembling that of Freiburg, in Germany. The explanation of these contradictions seems to be that the work as a whole was carried out by Portuguese, who had a fairly free hand as to details and particular features under the superintendence of an Englishman, or of a man familiar with English work, who had travelled in France and Germany, or was assisted by French and German craftsmen.

The impression produced by the great abbey is as mixed as it is original. Externally the proportions are imposing, and the elevations show in parts considerable beauty in features and detail, but the effect is marred, as is too often the case in Portugal, by a florid treatment full of ill-digested and ill-assorted foreign elements. Internally, the result is far more successful. Few nobler or more impressive interiors can be met with anywhere, swept though it is of all its splendid fittings by the vandalism of the French in 1891.

A very remarkable feature is found in the chapter house, a square chamber 60 ft. in diameter, and yet vaulted in a single span. It is the largest room of the kind known that is vaulted without any central support, and its vault is so strong as to have withstood repeated earthquakes. In view of the timidity of earlier Portuguese vaults this feat is in itself almost sufficient to prove the presence of an accomplished northern architect.

King John III. and Queen Philippa, with four of their sons, including the navigator, are buried in their southern chapel, but the tombs are plainer and the sculpture less fine than those of Alcobaça. Their grandson, named Edward, or Duarte, after his English grandfather, desired an even more splendid sculpture, and Huet planned for him an octagonal mausoleum beyond the east end, which it was intended should be surrounded by eight radiating chapels and eight smaller chapels between them. But his short and unsuccessful reign did not allow him to complete the scheme or even roof it in.

The work was taken up again by Dom Manoel the Fortunate towards the end of the century, when the Manoelino style was in full swing. The work was carried on till 1528 by a father and son of the name of Fernandes, and for five years more by one John of Castile, who also worked at Coimbra and Belem; but, even so, it was not finished, and still bears the name of Capellas Imperf itas. Manoel rebuilt the arch intended to lead into the main church, and carried up the piers with a view to building a lofty central vault. The arch is 45 ft. high, and shows the Manoelino style in its fullest development, with many planes of moulding, each elaborately enriched and interpenetrating one another, and several Orders of traceried cusping of opposite direction. The compound vaulting piers, so mighty that in their unfinished state they look like towers, are treated as bundles of reeds interlaced and bound together by cables and ribbons, the hollows being filled with foliage and heraldic devices. All this is merely the extravagant virtuosity and naturalism of the last stage of Gothic carried to extremes, but here and there Renaissance ornament is also introduced. While John of Castile's last addition consists in a pure Renaissance screen of two arches in the clerestory, whose relatively simple forms are in refreshing contrast to the orgy of contorted and worried lines around them.

Dom Manoel also embellished the cloisters of Batalha by filling the older plain openings with tracery of two alternating types, both composed of branch work, one of a regular reticulated pattern and the other, a lace-like screen of flowing design, probably suggested by Indian examples. At Alcobaça is an extraordinary doorway, which is interesting as showing the affinities of Manoelino, with the naturalistic tendencies of late Gothic in Germany, and the timid irruption into the midst of this flamboyance of Italian motives diametrically opposite in tendency. An opening with reversed cusps is framed in by two trees, with roots and stems and leafy boughs complete, and under their shadow nestle Italian arabesques.

Church of Sta Cruz, Coimbra.

Another monument of the Manoelino style is the Church of Sta Cruz at Coimbra. It is relatively sober, and shows no traces of Oriental influence, but resembles rather a French or Flemish flamboyant work, and is remarkable chiefly for the beauty of its fittings and contents, its tombs and tile linings. Its western choir gallery contains a magnificent series of stalls, richly carved and gilded, probably the work of Flemings. Above the canopies runs a frieze of reliefs representing the adventures of Vasco de Gama in India, with a crest of foliage.

In the choir are the tombs of two earlier kings re-erected by Dom Manoel. They are probably designed by a Portuguese, and are a moderate example of Manoelino Gothic, with some Renaissance sculpture and ornaments by French craftsmen, among whom were Master Nicolas and Jean de Rouen. The latter also made the lovely marble pulpit in the nave, and some even more refined but rather damaged monuments in the cloisters. The organ is a very happy specimen of Renaissance work of the later sixteenth or early seventeenth century, richly carved and glowing with gilding and vermilion. It shows the effective arrangement of pipes in a horizontal position common both in Spain and Portugal.

Church at Belem.

One of the noblest works of Dom Manoel's reign is the Church of the Hieronymites at Belem, on the Tagus, in the outskirts of Lisbon, which is certainly one of the most remarkable in Christendom. Externally there is something in the appearance of the golden white crystalline limestone of which it is built, and which closely resembles marble, and in the enriched doorway and windows sparsely set in a large expanse of plain wall, which calls to mind the Cathedral of Como, while internally the soaring columns and the broad spaces of mysterious gloom, shot through with rays of tinted light, inevitably suggest the Duomo of Milan.

The work, which was erected in commemoration of the discovery of the sea route to India, was begun in 1498, with Boutaca, a Portuguese, as architect. He was succeeded in 1511 by Lourenço Fernandes, and the latter by John of Castile in 1517, said to have been a Biscayan. About this date, too, the Frenchmen, Master Nicolas and John of Rouen, also arrived upon the scenes. The external features are finely conceived and delicate in workmanship—Manoelino Gothic in their general lines, with Renaissance ornament.

Internally, the wonder of the church lies in its vaulting. The aisles and nave are of equal height, about 90 ft., and there are no arcades or transverse ribs, but the vaulting ribs spring direct from the top of slender octagonal piers and radiate in all directions, like those of English fan-vaults; but, contrary to English practice, the fans do not touch or intersect, but are connected by spaces of what is really barrel-vaulting, though it is stiffened by surface ribs. The transept, which is 95 ft. long and 65 ft. wide, and is undivided by piers, has a vault soaring even higher than those of the nave, and yet this mighty vault is so scientifically constructed that it stood firm where Lisbon was rocked to its foundations by the historic earthquake of 1755.

The sacristy, chapter house, and other monastic apartments, as well as the cloisters, are likewise vaulted in a great variety of ingenious and beautiful systems. The cloister has a curiously Indian look, and suggests the Court of a Raja's palace rather than a place of meditation for Christian monks. The strangely ornate tracery of the lower arcade is set back under the shadow of deep arches, which, at the angles, bridge two bays diagonally. The faces and sides of the piers, as well as the soffits and spandrels, are overloaded with arabesques and carved ornament. The garden in the centre was originally laid out in a star pattern of tanks lined with brilliantly-coloured tiles.

The Templars' Building at Thomar.

The cloisters of Belem were almost the swan song of Manoelino art, but we cannot leave it without a reference to one of its most curious and extreme examples which occurs in the Templars' building at Thomar. When this order was abolished in 1314 and in other countries its wealth was appropriated to royal uses, Dom Denis the Labourer adopted a wiser course. He transformed it into the order of Christ "for the defence of the faith, the discomfiture of the Moors and extension of the Portuguese monarchy," and its wealth and prowess were used for the exploration and colonisation of Africa and India. The "Convento de Christo," which crowns a hill above the town and river, contains a number of buildings of different periods and of great interest. Among them is the sixteen-sided church already referred to. This was enlarged under Dom Manoel by the addition of a rectangular building containing a nave and chapter house by John of Castile, between 1505 and 1517, when he removed to Belem. His work in the two places is very similar, but after his time a further addition was made, Ayres do Quintal, which for the extravagance and originality of its features has no parallel. Their composition is almost indescribable in words. The window on the slide invariably disgusts the beholder at first sight, but a closer study of its riot of branching and twisting leaf garlands, its crowns and chains, knotted ropes, and knobs of foliage, reveals not only an extraordinary skill in execution, but also a distinct decorative sense. These strange enrichments are for the most part clearly confined within a rectangular boundary, and till in the strong southern light amid the surrounding spaces of bare wall in the same way as the bold heraldic panels so frequently seen of Spanish façades.

The Early Renaissance hardly survived the contemporary late Manoelino style. We have seen several specimens of its internal work, and the doorway of the College of St. Thomas at Coimbra shows an external feature in the same manner. One of the cloisters at Thomar is a good example of the Palladian phase of the later sixteenth century. A fountain in the court of the municipal buildings at Oporto may serve as an illustration of the lighter work of the seventeenth.

The Baroque.

The succeeding Baroque appears in many forms, few of which are as extreme as the Churrigueresque Church decoration at Oporto, which we saw earlier, or the Torre dos Clerigos in the same town, begun in 1755 in commemoration of the great earthquake. The great Palace of Mafra, built between 1715 and 1730 for John III., under a Bavarian architect named Ludwig, is a relatively sober design, and, though its detail and features are coarse and perverse, it attains real dignity by sheer size and fine proportions of its masses. Like the Escurial, Mafra comprises a convent and a church, as well as a royal residence. Its buildings form a rectangle of about 800 ft., with domical pavilions at the angles and the domed church in the centre of the façade.

Of the Fonte Grande at Leiria, which seems to date at least in part from the Baroque period, it will be admitted that it forms a picturesque setting for the equally picturesque water-drawers, with their amphoræ of Classic form. The Library of the University at Coimbra, with its enfilade of arched openings, and the sacristy of the Cathedral of Oporto, its painted walls, marble tables, and splendid array of walnut presses with brass fittings, are both examples of interiors of stately proportions and rich colouring.

Domestic Architecture.

The domestic architecture of Portugal has, as a whole, little to commend it to attention. The general run of houses, both in town and country, is singularly lacking in picturesqueness of form or beauty of decoration, but, in being built of materials harmonising with their surroundings in a manner suitable to the climate and to be devoid of meretricious ornament or ill-conceited attempts at architectural treatment, they possess qualities that are in themselves no inconsiderable merits. The houses are squarely built, commonly without recesses or projections, pierced with square openings and covered with low-pitched roofs. The usual roofing material is the so-called "Italian" or "pan" tile, of a reddish-brown colour; the broad eaves are supported by a kind of cornice formed of several courses of similar tiles corbelled one above the other.

Steeper roofs are not unknown, but they are so rare as at once to attract attention. The buildings of the University of Coimbra, for instance, perched in the most delightful situation in the world at the highest point of a hill city, and overlooking the romantic windings of the Mondego, are greatly enhanced in effect by roofs as steep as those of an old German "schloss," or "rathhaus," and covered with tiles that were once coloured and glazed.

Wrought-iron hooks of more or less ornamental design are often used at the lower angles of hipped roofs to keep the hip tiles in position.

The angles, coigns, and the dressing of doors and windows are sometimes in masonry of the plainest possible description. But, apart from

[*Photo. by Poulsham & Banfield.*

The Lotus Garden. (*See* "**Architecture and the Stage.**")

this, the houses are built of brick and rubble, covered with colour-washed plaster — white, blue, and mauve being the favourite tints. In modern times glazed tiles have also come into frequent use as internal wall covering.

The only other class of ornamental features besides those already mentioned consists in the pretty balconies which often jut out from upper stories. Their stone or marble floors are of every imaginable curvilinear or rectilinear shape, and are moulded on the edges and carried on corbels; while their wrought-iron balustrades are also of very varied design, the uprights being sometimes carried up so as to form a kind of pergola, or to connect the balconies of two or three stories. Here and there houses in the smaller towns are rendered picturesque by their external staircases with sloping roofs, and country houses which rise a little above the rank of cottages or farm-houses occasionally indulge in loggias or verandahs formed by projecting the roofs some distance beyond the walls and supporting them on stone columns.

In spite of the general southern look of houses, such as those described, the Englishmen in Portugal cannot help being struck by their possessing one familiar feature which is almost unknown in every other Continental country except Holland—in the sash window. Whether we got it from Holland, and whether Holland got it from Portugal or Portugal from Holland or from us, or all three from somewhere else, seems uncertain. The Portuguese sashes are often of a primitive kind without sash-lines, fixed at the top, and requiring to be propped open with sticks. There are usually four panes in the width and four in the height of the window, giving rather a squat appearance. In many of the houses of Oporto they are surmounted by a moulded and dentilled transom and a glazed panel with an arched and radiating pattern of glazing about it.

One more Portuguese peculiarity remains to be mentioned before I conclude, though not strictly architectural—the practice of paving the open spaces of the cities with mosaic patterns formed of small pieces of black-and-white stone, such as "Roly-poly square" of the British tar in Lisbon, with its wavy lines, the *place* at Oporto with its radiating ones, or the humbler market-place of Leiria, with its lozenge pattern. The same method of decoration is occasionally also applied to wall surfaces, as at the Convent of Bussaco."

The President
said one thing which greatly interested him, but which they did not hear a great deal about, was the roofs over the churches. They had heard that Portugal had produced very skilful carpenters who used some form of coupled rafters. It sounded very attractive, but he did not quite see how they worked. A point of very considerable interest to him was the plan of the churches. He was reading a book the other day on the Churches of Spain, and in it was described broad, aisleless churches of one nave which the builders of Spain had been developing for centuries. It seemed to him that the plan of those churches was just exactly the sort of thing they were looking for at the present time in this country for congregational worship. The book mentioned the fact that Gerona was 73 ft. wide, which was the widest pointed span in Christendom; and that Palma was 71 ft., but had side aisles which brought it up to 199 ft. These were spans which more than doubled their English cathedrals. Mr. Ward had pointed out that the transept at Belem, on the Tagus, was 65 ft. wide, which was a very remarkable thing, as was also the fact that the chapter house at Batalha was 60 ft. square, without central support, and had withstood the earthquakes.

Mr. H. M. Fletcher,
in proposing a vote of thanks to the author, said he thought they ought not to go to Portugal until they had pretty well formed their own ideas and tastes, because, if their ideas were still in the process of formation and they came under the influence of some of the things Mr. Ward had shown them, and filled their sketch-books, and afterwards put them up in the streets of London, the results would be more remarkable than desirable. The point which he considered had been made most clear was that to whatever riotous extent the Portuguese went in their details, yet they had the power of original planning. He thought it must have been the Portuguese themselves who had the power, because they did not find it in similar buildings in other countries. The idea of the church at Belem, with the nave and three aisles of ordinary proportions, ending in an immense hall going the other way, 65 ft. high without any columns at all, was certainly original, and the effect must be very splendid. He had seen some churches in the south of France which were influenced by the Spanish love of wide spans. The cathedral at Bordeaux was one. The nave was nearly 60 ft. wide, and the effect extremely imposing. The cathedral of Toulouse had also a nave of about the same dimensions, and they had oddly added to it a choir which was quite off the centre. They could not probably realise what the Manoelino style looked like in the climate, for one wanted to see work of such extraordinary richness under very brilliant sun. It must also depend a great deal for its effect on being confined to small portions of a building. The contrast of the great plain spaces must give it value which they could hardly realise by seeing the photographs. It was interesting to hear of English influence in Portugal, because we had had so little effect on the architecture of other nations. They did find it to some extent in the south-west provinces of France, for the cathedral at Bordeaux had an unmistakable English air about it.

Mr. V. C. Batalha Reis,
in seconding the motion, said he was in Portugal for over a year, and had visited most of the places described by the author. The planning in Portugal was very original, and he did not see on what grounds it was assigned to Northern architects. No doubt many foreigners were imported to carry out details, but the plans were so original that if they were the designs of foreigners one wondered why they did not follow the same lines in their own countries. Although people were imported, there was certainly one national style running through it all, and there was a certain barbaric touch in many of the buildings which was very interesting. He agreed with Mr. Fletcher that Manoelino architecture required a bright sunshine. The absence of Gothic architecture, he thought, was largely due to the fact that the clergy when they had money, as they did in the time of John III., pulled down the Gothic buildings and rebuilt them in the Rococo style. This rage for restoration existed even at the present day, and at Batalha, if there was a slightly-chipped old statue, they removed it and replaced it with a new one.

Mr. P. Cart de Lafontaine
thought that the tiles came from Delph, for they found similar tiles in Tunis and Algiers. There seemed to have been very considerable communication between the two sides of the Mediterranean in the past, and right in Tunis they found sculptured work which had absolutely Italian characteristics. Probably it was

due to the capture of workers, and it might be that in the same way Portugal captured Arabs and learned some of the secrets of the trade from them. The author hinted that he saw Indian influences in the architecture, but they could not trace it very distinctly in the slides.

Mr. A. G. R. Mackenzie
said he had been most interested from the point of view of colour; and in not having the colour in the photographs they missed half the effect. The tiles must be a great colour effect. In one slide he noticed there was a stained-glass window, and he would like to know if Mr. Ward was impressed with the combination of tiled work and stained glass. He remembered, in Toledo, in Spain, seeing a stained-glass window where the joints of the stonework were gilded, and the effect was one of extreme richness. It seemed to him that a combination of tiles and stained glass might have the same effect.

The motion having been carried,

Mr. Ward,
in reply, said he was indebted to Mr. Crum Watson for some of the slides, and that gentleman had also sent a letter stating that since he wrote his book he had discovered a few rather unimportant remains of Visigothic architecture, which he (the speaker) had said was non-existent. What he meant by the coupled rafters was that two rafters were placed one on each side of the tie and fixed to it, and that formed a kind of little truss, and these were spaced out along the roof instead of spacing single rafters. These rafters in each couple were connected with each other by lathes arranged in patterns. He did remember that the effect of the transept at Belem was extremely fine, and it was all the more startling because the early churches in Portugal were very narrow. When they found this extremely wide transept and very slender piers of the nave it was a curious contrast. He did not know if there were any churches in Portugal resembling the one at Gerona, but the churches of the preaching orders, which he remembered at Pisa and Siena, were very wide. He remembered one 70 ft. wide, and they were spanned with single trusses with roofs of a very flat pitch. The effect of these great naves without any division in them was exceedingly spacious and magnificent. The references to Mexico were interesting, and he wished he had some specimens of Portuguese architecture such as there must no doubt be in the cities of Brazil, and such as there certainly were in the Azores and Madeira. They would be very interesting for comparison, but he had had no opportunity of seeing them. The rage of restoration was certainly very great in Portugal. He was interested to hear from Mr. Cart de Lafontaine that tiles actually from Delph were used occasionally in Tunis, for he was very greatly struck at seeing the tiles in Portugal so much resembling the Dutch tiles. He had not been able to find out from any books where the tiles originally came from, but it would appear that probably they were imported from Delph. It was possible, however, that they imitated the Delph ware, because there had been a continuous manufacture of tiles in Portugal all through the centuries. He was afraid the photographs did not make the Indian influence obvious, but when one saw the work one was struck with it. He was not able to give any account of the stained glass, for what he saw was beneath description. It was of the best 1850 period, such as they found in this country—brilliant green and bright yellow and scarlet generally done in little mosaic patterns.

The President
announced that the next meeting would be held on January 19, when a paper would be read by Professor C. H. Reilly, F.R.I.B.A., entitled "The Neo-Greek Movement in Architecture in the Eighteenth and Nineteenth Centuries."

THE PONT DU GARD.

Apprehension is aroused by the avowed intention of a landowner to blow up with fulminate the end of the aqueduct which stands in and touches his property if the Government will not buy the land from him for 46,000 francs (£1,840). This famous structure, classified as a *monument historique*, is part of the aqueduct that was made by, reputedly, Marcus Agrippa, son-in-law of Augustus, in and about 19 B.C., to carry water into Nismes, in Provence, across the River Gardon from the sources—25 miles distant—of the Ure and the Airan. It "stays in solemn state" and in nearly perfect condition, spanning a rocky valley, and rising to a height of 180 ft., the topmost arcade being 880 ft. long. There are three tiers of arches; the lowest, of six arches, supports eleven of equal span in the middle tier, over which are thirty-five smaller in span. The canal, about 5 ft. by 2 ft., is U-shaped in section, and retains its original cement lining, with the covering slabs. The quarry is near, on the left bank of the River Gardon; some remains of other portions of the conduit, partly cut in the rock around the hills, can be traced in the immediate neighbourhood.

ARCHITECTURE AND THE STAGE.

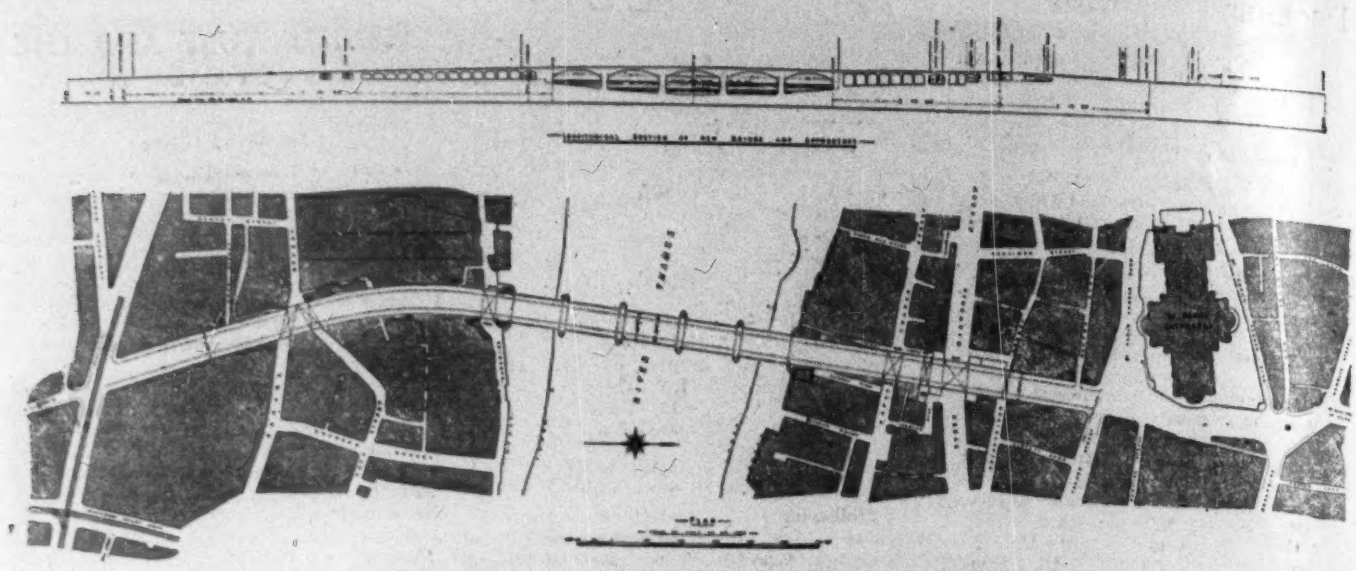
A FACT which may not have been noticed is that the three plays which have been produced in the last year dealing with the relations between Europeans and Asiatics all show clearly how much at fault Europeans are in their dealings with other races, the three plays to which we refer being "Typhoon," "Collision," and "Mr. Wu," now being produced at the Strand Theatre. Whether such productions do good by affording a useful lesson, or harm by emphasising the latent antagonism of East and West, is a debatable point, but the subject remains a curiously fascinating one.

"Mr. Wu" is, in its way, as interesting a piece as "Typhoon," though it has perhaps not the dramatic possibilities of the latter piece. The underlying idea throughout is latent race antagonism and the failure to understand the Oriental standpoint which is so characteristic. Mr. Matheson Lang acts the title *rôle* in a most masterly manner, and gives full effect to the dignity, impassiveness, and, we may add, sense of justice which distinguishes the better-class Chinaman. From his first entrance in the garden scene, in which he discovers young Gregory and his daughter, Nang Ping (a part charmingly rendered by Miss Hilda Bayley), to his death scene, he is consistent and forcible. Though his sense of justice is an eye for an eye and tooth for a tooth alone, we are made to feel that it is justice untouched by mercy which characterises his action, and that the designation "villain" does not aptly apply to him. The other parts are well filled, Miss Lilian Braithwaite's characterisation of the chief part of Mrs. Gregory being especially admirable, while the part of her husband is well filled by Mr. Leslie Carter. The scenery is artistically perfect, the Lotus garden of Mr. Wu's house at Kowlon being an accurate and charming realisation of an Oriental garden, but it is, if possible, surpassed by the feast of colour and design shown in the room in Mr. Wu's house in the third act, which for pure artistic effect we have never seen surpassed. We feel sure the management may count on a long run. The curtain-raiser, "Colombine," shows a quaint and pleasing idea well thought out. The two conventional trees against the sombre background produce a novel and unusual effect worth noticing.

It is difficult to analyse the type of mind which is appealed to by such a production as "The Ever Open Door," by Mr. George R. Sims and

[Photo. by Poulsham & Banfield.

Room in Mr. Wu's House. (*See* "Architecture and the Stage.")



St. Paul's Bridge: General Plan and Longitudinal Section.

Messrs. Mott & Hay, Engineers.

Mr. H. H. Herbert, now being played at the Aldwych Theatre, where it has had over one hundred nights' run. It is only evident that it does appeal to a large class of people, and so justifies itself. But neither situations, conversations, nor actions seem to us to bear any resemblance to those occurring in real life. The only solution to the problem appears to be that audiences can be found which are so uncritical that they are satisfied with spectacular display and the enunciation of sentiment, however inappropriately and unnaturally expressed.

But there is a great deal to see. The homes of the poor and those of the rich, a public-house and a church, burglars, villains, a clergyman, clerical processions are all given, and both vice and virtue are unashamed and open. We have all the accompaniments of melodrama, music to mark the touching passages—everything, in fact, to save the audience from a moment's doubt or ambiguity; except a searchlight following the villain's movements—in all else it is typical and crude melodrama.

We are afraid it cannot be said that the play at the Ambassadors, based on Tolstoy's "Anna Karenina," is a good adaptation of the book we know, but it is an interesting production which gives Madame Yavorska another opportunity of showing her genius for acting. Anna Karenina is unhappily married, and in spite of her love for her child, and partly because of her disagreeable and unforgiving husband (well played by Mr. Herbert Bunston), she leaves her home with Alexis Vronsky (Mr. Norman Trevor). The rest of the play deals with attempts at divorce, of her unhappy and unreasoning jealousy, and finally of her suicide. Though some of the smaller parts are well played, the piece would have little attraction if not for Madame Yavorska, but her representation of a very emotional and unsatisfactory character is an extraordinarily powerful and, we should think, physically exhausting performance. There is some good scenery, particularly Act III. and, but for the railway, Act IV.

COMPETITION NEWS.

It must be understood that the following paragraphs are printed as news, and not as advertisements; and that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

The list of current Competitions is printed on page 655.

The Corporation of London (Bridge House Trust). St. Paul's Bridge: Abstract of Conditions and Instructions.

Competitors are to submit designs for the architectural treatment of St. Paul's Bridge in masonry and other works. Sir William Emerson has been appointed to act as assessor.

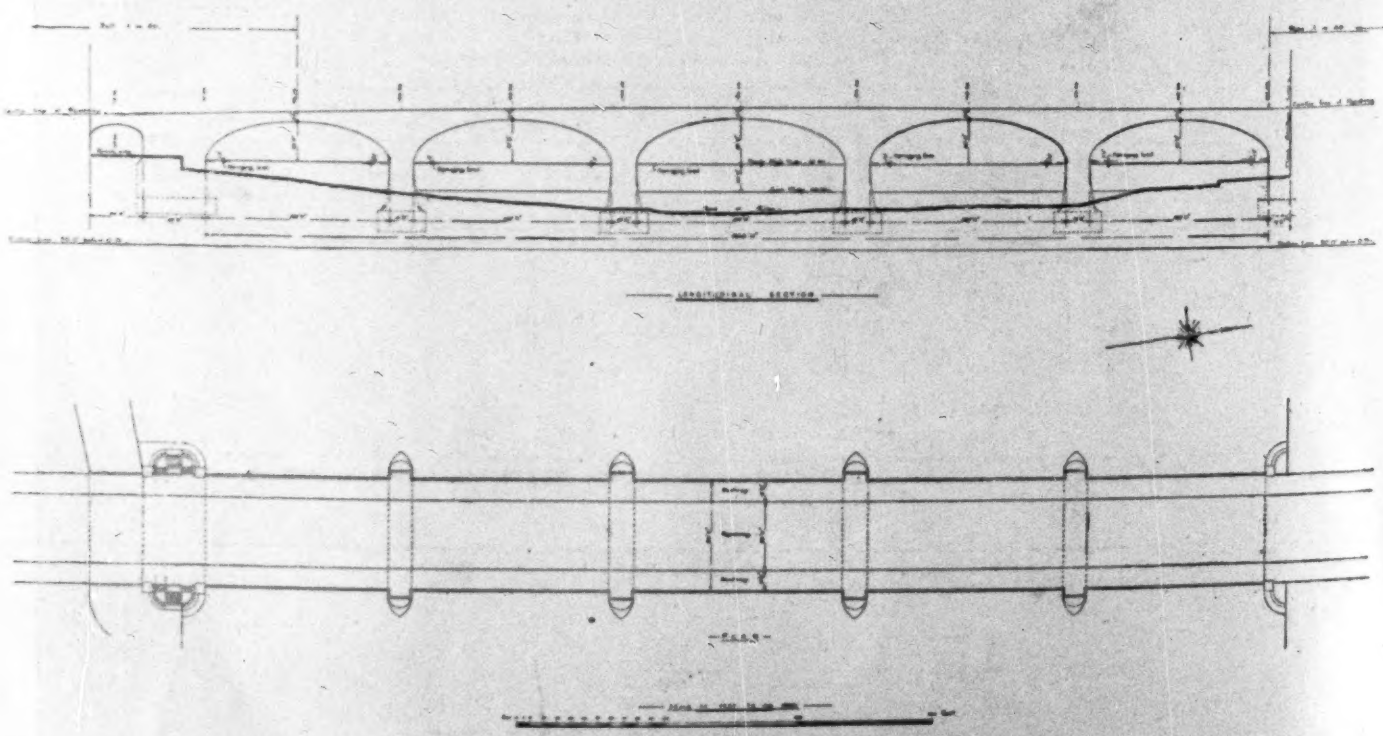
Premiums will be paid as follows, namely:—£300 for the best design, £200 for the second, and £100 for the third, and such premiums will be paid in accordance with the award of the assessor.

All questions asked by the competitors must be made to the assessor through the Town Clerk, Guildhall, E.C., not later than December 31, 1913, after which date no further questions will be received, and copies of all such questions with the answers will be delivered to each competitor on application to the Town Clerk. Drawings and reports to be delivered on May 4, 1914.

The Committee shall not be bound to adopt or carry out any of the designs submitted, but it is their intention to employ the competitor or competitors whose design shall be placed first to carry out the work unless, after full consideration of the cost involved in such design, and any other matters which the Committee may require to take into account, there are reasons to the contrary, and any competitor so employed will be required to enter into an agreement in a form approved by the Committee setting forth the terms of his employment.

If after notice to the architect that his design has been adopted for use in the architectural treatment of the bridge no instructions are given to him within twelve months from the date of such notice to proceed with the working drawings, then he shall receive payment for his services in connection with the preparation of his design of the sum of £400, in addition to any premium which may have been awarded to him; but if the work be subsequently proceeded with such £400 shall form part of his ultimate commission.

Messrs. Mott & Hay or other of the Committee's engineers will be responsible for the engineering portion of the construction, foundations, etc., and the working drawings of



St. Paul's Bridge: Longitudinal Section and Plan.

Messrs. Mott & Hay, Engineers.

the architect must be prepared in conjunction with such firm.

The remuneration of the architect shall be calculated in accordance with the schedule of duties and charges sanctioned and published by the Royal Institute of British Architects on the cost of all the architectural work in connection with the bridge, exclusive of engineering and other work not entering into the general architectural design.

Generally, the Committee desire to obtain the finest architectural design at reasonable expenditure :—

1. For architectural treatment of the bridge itself.

2. For the approaches and staircases on the south side of the river and the abutments and wing walls on the north side of the river.

3. For the bridge access stairways and adjuncts over Queen Victoria-street.

4. For the bridge over Upper Thames-street.

The junction between the northern approach road and Cannon-street at St. Paul's Churchyard is not to be dealt with in this competition.

The engineers' plans and sections of the proposed bridge and approaches showing levels and heights of arches and abutments, etc., will be supplied to competitors.

The drawings supplied by the engineers of the bridge itself in regard to the width of road gradients, heights of the crown of arches in the centres above the high-water level, and the thickness of piers should be adhered to as nearly as possible by the competitors.

The competitors are at liberty to exceed the limits shown on the plan of 88 ft. to the inch for the staircases on both east and west sides which give access to the bridge from the lower level on the south side of the river, and can use their own judgment as to providing a good arrangement and width of steps. Also, these staircases and abutments should be considered with a view to a possible future embankment along the south bank of the river, for which suggestions may be made by the competitors.

The Committee are not prepared to consider the possibility of a future embankment on the north side of the river.

The competitors are not asked to deal with any property between the river and Cannon-street except at the points coloured red on the plans supplied.

The following drawings are required to the scale of 16 ft. to the inch to show the designs :—

(*a*) The necessary plans, elevations, and sections of the bridge, and its piers and abutments with the approach from Bankside and staircases from the lower to the higher level on the south side of the river, considered with the view to a possible future embankment at this point.

(*b*) The abutment and wing walls on the north side.

The parts coloured red on plans supplied adjoining these wing walls can be utilised by the competitors to form a handsome approach to the bridge on the north side. It is contemplated that on the space below the road level of the approach road at these points buildings may be provided as business premises, the upper part to be treated as competitors think best.

To the scale of 8 ft. to the inch :—

(*a*) The elevation of masonry bridge over Upper Thames-street, particulars of which are shown on plans supplied.

(*b*) Plan, elevation, and section showing parapets, etc., of the steel bridge over Queen Victoria-street, with four wing buildings which are to contain staircases from the lower to the upper level on opposite sides of the street with an entrance also to staircase, if possible, from Lambeth Hill.

The outline of the steelwork is supplied by the engineers.

The following ¼-in. scale details are required (plans, elevations, and sections as necessary) :—

(*a*) Detail of half the centre arch of bridge over the river and part of the side adjoining arch with pier.

(*b*) Detail of abutment on north side of river and flank walls.

(*c*) The staircase and enclosures and approaches from the lower to higher level on Bankside.

Also three perspective sketches as follows :—

(*a*) One of part of the centre and part of the side arches of the bridge showing piers, etc.

(*b*) One of the bridge over Queen Victoria-street with staircase buildings.

(*c*) One of the staircase and enclosures on Bankside as viewed from the river.

Coventry Technical Institute ; Residential School, Glake Hall, Durham.

Members and Licentiates of the R.I.B.A. are advised that the conditions of these competitions are not in accordance with the Institute regulations for architectural competitions, and the Competitions Committee are in correspondence with the promoters with a view to getting them amended.

Dame Agnes Meller's Lads' Club.

This club for poor lads is proposed to be erected in commemoration of the 400th anniversary of the foundation of the Nottingham High School. Architects who are old boys of the School have been invited to compete. The amount proposed to be expended on the buildings is estimated at £4,000 A site has been obtained at Radford.

Residential School Competition, Glake Hall.

Members of the Society of Architects are advised that the conditions of the above competition are at present unsatisfactory in certain respects, and that they should not take any part therein under the present conditions.

CORRESPONDENCE.

The Cheap Cottage.

SIR,—The correspondence in last week's *Builder* caused me to turn up the file of the *Builder* and reread the article in the issue of September 9, 1905, on the Cheap Cottage Exhibition at Letchworth.

In this article you sum up in favour of Mr. Troup's and Mr. Brodie's cottages, and suggest that by a different treatment it might be possible to make Mr. Brodie's cottage better-looking.

It would be interesting to know if Mr. Brodie's flat-roofed concrete cottage has been further developed both as regards treatment of the material and design.

I refer your readers to your issue of September 9, 1905, for a description of this cottage.

W. P. S.

SIR,—I have carefully read your appreciative, but provocative, article in issue for November 28 on the cheap cottage, and should be glad if you would allow me to make a few comments upon some of the points to which you refer. Nearly everyone will agree with you that the demand for cottages in the rural districts has become acute and that the solution of the problem is pressing ; but very few, I think, will be prepared to endorse your remarks that Mr. Arnold B. Mitchell's "Standard Cottage" adequately and satisfactorily solves the comfortable housing of the labourer. Briefly, your answers to the criticisms of the £110 cottage are :—

(1) That the disadvantages of the proximity of the larder to the earth-closet is far-fetched.

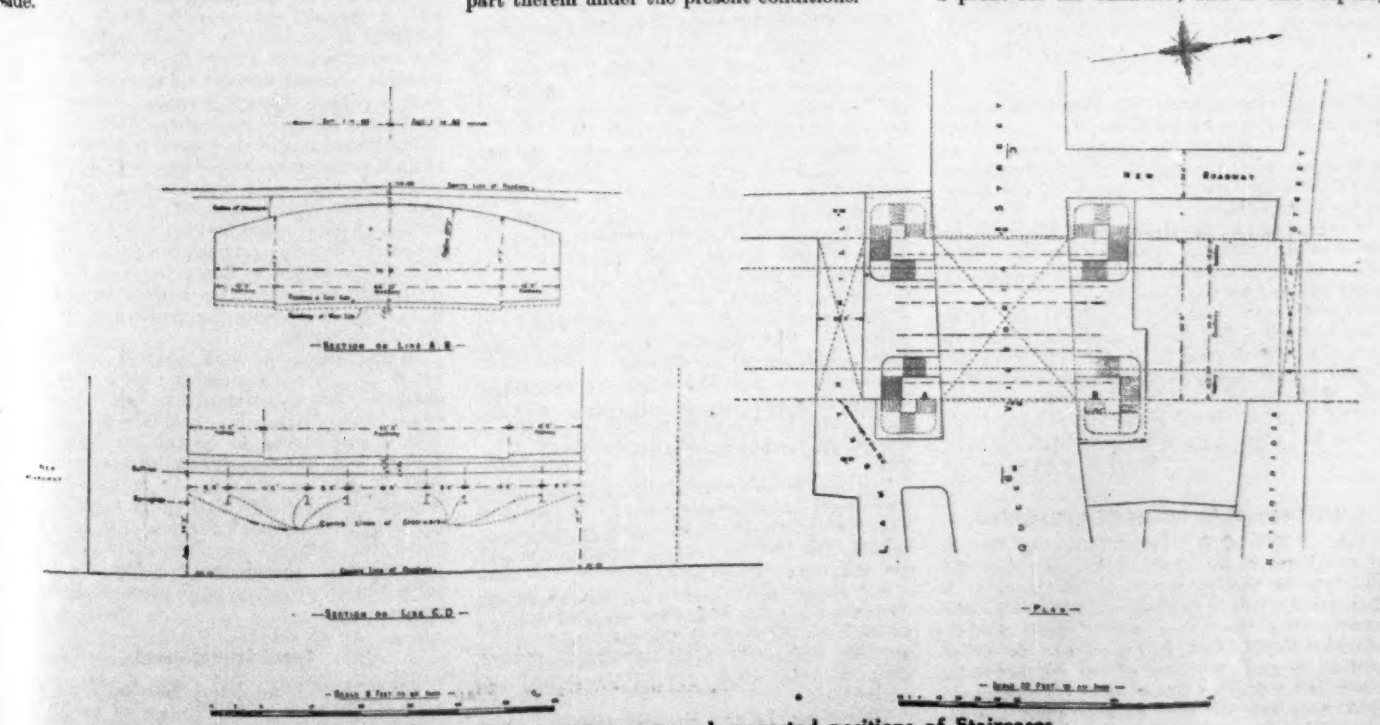
(2) That the dimensions of the living-room are in reality sufficient.

(3) That although the cubical contents of the bedrooms are below what is required by the by-laws, they give what is really required from a hygienic standpoint.

(4) That generally the cottage is convenient and of adequate dimensions, and that the by-laws should be amended to admit of building cottages of this description.

It is significant that not one of these statements answer fairly and squarely the criticisms which have been directed against this cottage ; they are statements unsupported by evidence which would convince anyone but the most innocent lay member of the public. If there are points to be urged in favour of making this £110 cottage a standard design they should be supported by reasonable evidence. So far this has not been done, with the one exception, that it can be made to pay commercially.

In reality this matter of cottage building is at present only incidentally a question of housing the labourer, and primarily a problem of how to build a cottage for the labourer with a profit for the financier ; and in this respect,



Bridge over Queen Victoria-street, and suggested positions of Staircases.

Messrs. Mott & Hay, Engineers.

and this respect only, do I think the design a success.

"Either," says Mr. Reginald Blomfield, A.R.A., "we are to have reasonable cottages, which will not be a horror in the neighbourhood, or they will have to be built within this figure—which appears to be the standard figure—of £110, which architects in practice know to be perfectly ridiculous; and the sooner some of these absurd ideas which are scattered about before the public are put right the better."

G. Ll. Morris.

[*** We think Mr. Morris had better go and see the cottage in question, as we have done, and we think that he would modify the terms of his letter after such a visit. We have more authority for our article than our correspondent has for his reply.—Ed.]

Sir,—May I, as one who shared some of "J. H. M.'s" doubts, but who preferred to visit one of Mr. Mitchell's cottages before making public comment, assure him that the "doll's-house" really provides a home for an ordinary labourer and his family?

The cottage which I visited was ready for occupation, though the site was vacant on September 25 last. I did not apply the coffin test, but I, being of average height, passed without even apprehension of difficulty up and down the staircase with my hat on. "J. H. M." seems to score a point over the different spacing of the joists and of the rafters; it is true that *every* joist is not halved and spiked to a rafter foot. I can only say that I jumped on these floors and found them quite rigid. It is also true that the total superficial area of the rooms is somewhat less than is the minimum required by the Report of the Committee on Housing. But I left without doubt that for the practical purpose of living these rooms are of sufficient size. I may say that in the cottage to which I refer the height of the vertical ashlar from the first floor level is 4 ft. 6 in., not 4 ft., as shown on the drawing which you published.

To pass from matter of fact to matter of opinion, one may say that a fireplace is not necessary in the smaller bedroom, since one or other of the flues which pass in its internal wall is in daily use, and there is a ventilator at the ceiling level; certainly such a fireplace would not be used in actual occupation. I also think the front door to be unnecessary. As to cost, the most accomplished architect may receive an estimate which of his own experience and by the test of competing builders he knows to be excessive, just as a builder may through carelessness find that his estimate has not been sufficient, and Mr. Troup's information as to the cost of these cottages in Oxfordshire may be correct; but it will interest your readers to know that there is in writing the evidence of a builder in Essex, who has already built two, that he is very willing to build more at the stipulated price of £110, and I understand that at least twelve others have been built in different parts of the Home Counties for this sum.

Howard Ince.

The following letter by Mr. Mitchell has been sent to the *Times* for publication:—

"Sir,—I observe in to-day's *Times* your note concerning the action of the Chelmsford Rural District Council in approving the plans of my £110 cottage.

The real matter in dispute, and the primary cause of all subsequent trouble, was the height of the rooms, in view of the method of measurement adopted by the Council.

The Council measured height not from floor to ceiling, but to the underside of beams on cornices projecting below the ceiling level—a most unreasonable and oppressive interpretation of the by-laws.

The Council have given way upon this point, and there is no more to be said.

Arnold Mitchell."

Unsatisfactory Architectural Competitions.

Sir,—"F.R.I.B.A." forgets that the Society of Architects have always maintained that the Institute is the proper body to promote a Registration Bill in Parliament, and the Society have stated that they will "climb down" provided the R.I.B.A. Bill applies to the whole profession and protects all vested interests. There is no proviso under these circumstances that members of the Society shall receive recognition from the Institute.

The Society is not out for that purpose, but for the purpose of obtaining the recognition of architects under an Act of Parliament.

It will be evident to all unbiassed persons that a society which is promoting legislation calculated in all probability ultimately to extinguish that society must be acting solely in what it conceives to be the interests of the community, the art, and the profession.

C. McArthur Butler
(Secretary, Society of Architects).

Sir,—Of the competitions, the results of which in recent times have been unsatisfactory, the worst appears to me to be the *Daily Mail* cottage.

It seems that in this competition some 170 designs were received and duly adjudicated on by assessors in whom the profession have some confidence. That the assessors made some mild comment that not one of the designs was perfect, on the strength or weakness of this the whole lot are thrown aside and an architect appointed to carry out the work, whose sole qualification seems to have been that he had the luck to win a year or so ago a competition for a large office building.

There have, in previous years, been competitions organised by this same paper, in which the general standard of the designs was at least high—so high, in fact, that some of us, who, in our little way, think we know something of the subject, have not found ourselves in the first places; and it is almost inconceivable that the competitors in this one deserved this treatment. It would be interesting to know if the assessors approve of the course followed. It would be useful also to see the full award and to compare the designs with that carried out at Olympia. I suggest, Sir, that the premiated designs should be published, or, if the copyright law prevents this, a summary.

An Onlooker.

Restoration Work at Wells Cathedral.

Sir,—The letter by your correspondent on the above in your issue of November 28 gives the impression that needless new stonework is being carried out. I have been visiting the Cathedral for over thirty years, and in my opinion quite £5,000 could be spent at the present time in replacing decayed stone and burst joints caused by the old ironwork, as there is no such thing as continuity in free-stone, artistic or otherwise. The next best thing is to replace with good copies of the old work, which is being done. As to the installation of heating apparatus, even Mr. Ruskin deplored the barbarous and inadequate coke fires and stove-pipes piercing the vaulting of many of our cathedrals. When the trade of politics is abolished I hope a considerable part of the Hon. M.P.'s salaries will be voted by the Government for the restoration of our cathedrals.

Weston-super-Mare. Edward Vale.

"London Unique": A Suggestion.

Sir,—I have endeavoured to direct attention in your columns to the scheme for the City bridges. The work of demolition is now in progress, and the river will soon be cleared of old Southwark Bridge and operations on the new one begun, if not prevented.

Considering, however, that there is the proper spending of millions of public money involved, it is important that the right thing should be brought about, even although the work has been duly sanctioned by Parliament.

Accordingly it has been suggested that rebuilding be delayed until the whole question be considered afresh under the new conditions which must shortly be brought about in connection with London traffic improvement and Government action therein.

It is not too late; the moment is opportune, because it is essential, as will appear, that the river course be cleared of the old structure and the public (pedestrians) accommodated meantime.

The onus of an hiatus in the continuity of the operations at Southwark Bridge rests, it is believed, principally with the authority concerned—the City of London Corporation, who are carrying forward the work.

An arrangement with that view with the contractor is quite within the range of business possibilities, considering the magnitude of the matters ultimately involved, concerning, as they do, the whole of the metropolis and authorities.

Objections to the present scheme, which includes St. Paul's Bridge, have already been noted. Might I now focus the matter in question for future consideration by supplying an illustration by way of alternative?

It is to the following effect:—

1. That instead of reconstructing Southwark Bridge a new bridge and approaches be constructed parallel to Cannon-street railway bridge between Cannon-street and Southwark-street.

2. That Queen-street be connected thereto by embankment, being the first section (about 100 yds.) in joining on to the Victoria-embankment. Agreeably to his Majesty, it might be known as George V. Embankment.

3. That the new bridge be of such a width that an abundant service of trams may come up to the "back door" of the City.

4. That new underground connections with the City be considered in connection therewith and a co-ordinating plan of communications for the whole metropolis.

It may be remarked that if the proposed St. Paul's Bridge must have an auxiliary it is reckoned it would be much better placed there with the trams than with those a quarter of a mile off from the central point and in a *cul-de-sac* position as they are in the Southwark Bridge scheme.

On the other hand, St. Paul's Bridge being abandoned, the funds, as a contribution, could be applied generally for the suggested new bridge and approaches right up to the Bank. It would afford relief there where there is pressure from all directions, where also relief in other directions must be considered as well in any general scheme of traffic improvement for the metropolis. In the connection it might be found possible to rebuild to advantage the triangular space enclosed by Cannon-street, Queen Victoria-street, and Walbrook. With a grant in aid the latter might be widened and adapted for modern purposes in connection with the new work suggested.

Dowgate-hill would be widened to first-class width under the like favourable conditions. Starting at Cannon-street, in the very heart of the City, a modern avenue of first magnitude and magnificence might then be planned as an approach to the City from the South.

It would be the shortest route to the Elephant and Castle, or at least to Newington-causeway at Borough-road. In further development it might be continued ultimately through an improvable district ripe for clearance to the Crystal Palace.

On the right a branch might form a direct route from the City to Charing Cross *viâ* a new bridge there. York-road would be widened to Westminster Bridge, whilst another spur would connect up Kennington-road and, *viâ* a new Lambeth Bridge, Victoria with the Bank.

On the left there would be developments of a similar character.

As regards the suggested embankment between the new bridge and Queen-street, the whole of the property in the rectangle would be acquired and the site facing the river converted into a magnificent riverside block. All the property in question is "improvable," and in the rearrangement a loop for the tramways to traverse would be formed *viâ* Queen-street. In fact, a proper through terminal station might be designed for all passenger surface traffic.

The question of underground communications of an express nature would also be considered in relation to the improvement and a co-ordinating plan for the whole metropolis and an extensive section of the country besides, which it has been proposed should be associated with it. By such means it is sought to link country and town in reciprocal movement for mutual benefit, and in so doing to advance the position of our most ancient authority.

In conclusion, the work which it is sought to arrest is, it is contended, of a piecemeal character, and no attempt has been made, it is reckoned, to fit it in to a general plan.

It is well known to be only partially satisfactory, and physical difficulties have appeared since it was sanctioned. It is moreover so important and costly that, it is submitted, it ought to be considered afresh at this later date under the different conditions, for either improvement or abandonment before the actual work of reconstruction of Southwark Bridge is begun.

O. B. I. T.

Canal Improvement.

Sir,—There is no doubt that the French are far ahead of us in the matter of canals and waterways.

Five years ago I walked from Havre to Rouen by the banks of the Seine, partly to see the

architecture of Maeterlinck's house (the old Abbey of S. Wandrille) and the quaint little town of Caudebec and partly to see the country-side and peasantry. I found considerable traffic was carried both by river and canal, and learned that these waterways extend even as far as Paris.

This information has stood me in good stead since, because I have sent my product, "Pudlo," from King's Lynn to Paris without communicating with any railway or any other means of transit except water. Upon reference to the map readers will see that by this means considerable saving is effected in the cost of transit.

A Committee from the Town Council of Bedford recently called upon me respecting a proposal for again making the River Ouse navigable from King's Lynn to Bedford.

When Daniel Defoe came to King's Lynn in 1722 King's Lynn had the advantage of having "the greatest extent of inland navigation of any port in England, London excepted," by means of the navigable rivers connected with the Ouse. The local merchants were able, Defoe tells us, to supply about six counties wholly and three counties in part with their goods, especially with wine and coal. By the Little Ouse they sent goods to Brandon and Thetford; by the Lark to Mildenhall, Barton Mills, and Bury; by the Grant (or Cam) to Cambridge; by the Ouse to Ely, St. Ives, Huntingdon, St. Neots, Barford Bridge, and Bedford; by the Nene to Peterborough, and by various drains and washes to Wisbech, Spalding, Market Deeping, and Stamford.

Defoe adds that Lynn imported more coal than any other port between Newcastle and London, and more wines than any other port in England, save London and Bristol, while its trade with Norway and the Baltic Sea was "great in proportion."

It is very unfortunate that when the railway companies in England bought up the canal systems they allowed them to fall into disuse, because they would certainly have worked very well in conjunction with the railways to-day for slow traffic and brought them better dividends.

As you say in your "Notes," if it has paid France to spend £800,000,000 sterling in improving her waterways, and the same course has been a great factor in the development of commercial Germany, surely it would pay this country to seriously consider the readoption of the canal and river services which have so long been in desuetude.

J. H. KERNER-GREENWOOD.

ARCHITECTURAL SOCIETIES.

The Royal Technical College Architectural Craftsmen's Society, Glasgow: S. Sophia, Constantinople.

At the fortnightly meeting of this Society, held in the Society's Room in the Technical College, on the 5th inst, Mr. Thomas G. Gilmour, A.R.I.B.A., President, in the chair, Professor Charles Gourlay, B.Sc., A.R.I.B.A., delivered a lecture illustrated by lantern slides, on "The Great Church of Santa Sophia, Constantinople." He referred to the interesting fact that this church, the greatest monument of the Byzantine style of architecture, was erected within the area comprised in the site of the ancient town of Byzantium, whence the style derived its name. The Professor then showed illustrations of plans and interiors of Greek, Roman, Early Christian, and previously erected Byzantine buildings to allow of a true appreciation of the great advance made by the magnificently conceived plan of Santa Sophia with its beautiful interior, upon those of any other buildings then in existence. Because of its size, the church was known as "The Great Church," and it was erected for the Emperor Justinian by the architects Anthemius of Tralles and Isidorus of Miletus, between the years 532 and 537, when the Byzantine style was at its culmination; hence its composition and details are of the choicest design and execution. The plan of the church was fully studied, including its nave, aisles, narthexes, and gallery, then followed views of the exterior and interior, and also of details, which were all fully described.

GENERAL NEWS.

Appointment.

On the nomination of Mr. Reginald Blomfield, A.R.A., President R.I.B.A., the Secretary of State for India in Council has appointed Mr. B. M. Sullivan to the post of Consulting Architect to the Government of the Punjab. Mr. Sullivan, who received his early architectural training under his father, Mr. M. Sullivan, A.R.C.A. (London), has for some years been leading assistant to Messrs. Lanchester & Rickards, FF.R.I.B.A., who have carried out designs for various buildings and important civic improvements in India. Mr. Sullivan is an Associate of the Royal Institute of British Architects and a member of the First Atelier Club. He sails to take up his duties at the end of this month.

New Board of Trade Offices.

It is announced that Mr. Ernest Newton, A.R.A., has been appointed one of the assessors in the competition of architects for the New Public Offices (Board of Trade, etc.), in place of the late Mr. John Belcher, R.A.

Rome Scholarship in Decorative Painting.

The Royal Commissioners for the Exhibition of 1851 have awarded to Mr. Colin Gill, upon the unanimous recommendation of the Faculty of Painting of the British School at Rome, the Rome Scholarship in Decorative Painting. Mr. Gill, a pupil of Professors Frederick Brown and Henry Tonks in the Slade School, won the Slade Scholarship (£70) in 1911, and the British Institution Scholarship (£100) in 1912. He is twenty-one years of age, and is the son of Mr. George J. Gill, of Cudham, Kent; at St. Dunstan's College, Catford, he began his art studies under Mr. A. W. Carter, and then, in 1908, became a pupil of Mr. W. H. Caffyn, the well-known illustrator.

Architectural Paintings by Mr. A. E. Henderson.

Those of our readers who are acquainted with the works of Mr. Arthur E. Henderson, F.S.A., examples of which have been published by us, may be interested to know that four of his architectural paintings will be offered for sale at Messrs. Sotheby's on December 15 next, and can be viewed at their rooms in Wellington-street, Strand. The interior of Amiens Cathedral and the exterior of the Mosque of Sultan Suleiman have been reproduced in these pages, and need no further comment. The small oil painting of the Arch of Titus is an able work, and the large interior of Monreale Cathedral is a fine rendering of a difficult subject. Mr. Henderson's works, whilst being pictorially interesting, reveal very careful study of architectural detail, and are well worthy of the attention of students and all who have regard for the architectural beauties of ancient buildings.

The Cheap Cottage.

The dispute between Mr. Arnold Mitchell and the Chelmsford Rural District Council in respect of the model cottage which he built at Great Baddow was discussed at a meeting of the Council on Tuesday. Mr. Mitchell wrote stating that, in view of the decision that his cottage was a building and not a model, he formally asked for approval of the plans, and offered to provide drainage, water supply, and an ash-bin. He suggested that the Council should not enforce the by-laws as to the height of rooms and the paved area at the rear The Buildings and Works Committee reported that they were unable to advise the Council to waive the by-law in respect of the paved area, but with regard to the height of the rooms they recommended that the full requirements of the by-laws be not insisted upon.

Sir Isaac Newton's House.

The materials of the house, No. 35, St. Martin's-street, Leicester-square, W.C., have been removed, carefully numbered, grouped, and packed to Hitchin, where most of the rooms will be re-erected at the Manor House by Mr. Hugh Phillips in the course of next spring, with a view to a contemplated Newton and Burney Exhibition, and ultimately, it is hoped, a permanent Newton and Burney Museum. The house, of which a short historical account recently appeared in our columns, was occupied by Newton during the close of his life, and afterwards by Dr. Burney and his family—Mrs. Thrale's "dear Newtonians." The so-called "observatory" was erected on the roof after Newton's time by a tenant, who showed it, with some pseudo-relics, for a charge to credulous visitors. Newton did very little astronomical work after he left Cambridge to take up his appointment in 1696 in the Royal Mint.

Lamp Standards on the Thames Embankment.

At the Institute of Sanitary Engineers on December 3 Mr. H. Percy Boulnois, M.Inst.C.E. (the President), gave some of his reminiscences as a sanitary engineer. Mr. Boulnois was a pupil of the late Sir Joseph Bazalgette, the Engineer of the Metropolitan Board of Works during the construction of the main sewerage system of London and of the Thames Embankment. He said that, *à propos* of the drawing office, he remembered they had a draughtsman there who really designed the beautiful lions' heads and the beautiful dolphin lamp standards. They were all original designs. He was a man named Waldeck, and could draw perfectly well with both hands. In the subsequent discussion Mr. E. Benedict said that many years ago Mr. Lindley Sambourne told him he designed the standards.

Richmond and the River.

Londoners will take a special interest in the town-planning scheme proposed by the Town Council of Richmond, the preparation of which has now been authorised by the Local Government Board, for Richmond is one of the chief playgrounds and beauty spots within easy reach of the centre. The preservation of the river scenery of this district is, therefore, a matter of more than local importance. It is satisfactory to note that the amenities of the riverside from Teddington Lock to Kew Bridge are one of the principal concerns of the scheme, and the fact that the protection of Kew Gardens is involved gives additional importance to the undertaking. It is one of life's little ironies that, while such great efforts are being made locally to preserve the beauty of this portion of the Thames, a Government Department should propose to spoil it by the construction of a concrete embankment wall that would prevent a few square yards of the Old Deer Park from being occasionally flooded. Happily this piece of stupidity appears to have been frustrated by the action of the Richmond Town Council. The spectacle of a cultured central authority being saved from an act of vandalism by the protests of a philistine Town Council may be amusing, but is not edifying.

Lindsey House, Lincoln's Inn-fields.

A fine old mantelpiece from No. 59 (part of Lindsey House), Lincoln's Inn-fields, has been offered for sale at the price of £250. The work is ascribed to Isaac Ware, after a design by Collins, in or about 1752. Lindsey House, since covered with stucco, and subdivided for offices in 1849, formed the principal feature of the west side—originally Arch-row—of the square laid out by Inigo Jones as it is delineated in the view preserved at Wilton. It was built by Inigo Jones for Robert Bertie, Earl of Lindsey, who fell at Edge Hill, and since 1715 was known as Ancaster House, upon the elevation of the fourth Earl as Duke of Ancaster and Kesteven.

Spitalfields Market.

In pursuance of a recent statute—the Stepney Borough Council (Spitalfields Market) Act, 1912—the Stepney Borough Council and the Corporation of the City of London have agreed upon the main provisions of a scheme, to be carried out by the Corporation, for dealing with the Spitalfields Market area, which for some years past has been the subject of controversy and negotiation. The contemplated scheme comprises an improvement of the market and its traffic, the supply of "lay-bys" for carts and waggons, and the widening of several important thoroughfares in and around the market. The computed initial cost amounts to some £330,000. The Finance and the Central Markets Committees of the Corporation will confer together as to providing the requisite funds, and obtaining statutory powers for the compulsory acquisition of the necessary properties for the improvements, besides the widening of Spital-square to 45 ft. and of Lamb-street, together with White Lion, Brushfield, Duval, and Crispin streets, and the making of a new approach out of Bishopsgate by way of Commercial-street. The Corporation have notified their intention to introduce a Bill for these purposes in the ensuing Session of Parliament.

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ILLUSTRATIONS.

Flats *de Luxe*.

THIS is a perspective view of a block of "Flats *de Luxe*" on the site extending from Devonshire-street to Weymouth-street in Portland-place, the central section of which is completed.

Our illustration is a reproduction from the water-colour drawing which was exhibited in this year's Royal Academy.

The architect is Mr. Frank T. Verity, F.R.I.B.A.

The Alliance Assurance Company, Ltd.: New Office, George-street, Sheffield.

THE accompanying design is the work of Messrs. Goddard & Catlow, of Leicester, and was successful in a limited competition promoted by the company. The building is of Portland stone, with granite base, and is fireproof throughout, the system of the Siegwart Fireproof Flooring Company being used. The main office, secretary's office, and board-room are panelled in Austrian wainscot oak, and all fittings are of the same material.

Messrs. John Eshelby & Son, of Sheffield, are the contractors for the work.

Prince of Wales' Cinema.

THIS cinema theatre was finished about two years ago, and was built for Messrs. Henry & Co.

The hall seats about 750 persons, and has its own generating plant both for the lighting and bioscope machines.

The front is finished with "Cotostone," with modelling by Mr. Michael Lawlor, and the decorative plaster-work to the interior was modelled and executed by Mr. Cox, of Leicester. The builder was Mr. E. Sandon, of Harrow-road.

T. M. WILSON.

Rutland Park Cinema.

THIS theatre was finished about a year ago, and was adapted from an old factory building, the walls and roof of which were left standing, but the whole of the interior was taken out.

It is approached by an entrance hall and lounge from High-road, Willesden Green. The builder was Mr. Sandon, of Harrow-road, and the decorative plaster-work by Mr. Cox, of Leicester.

The interior is decorated with grey and blue walls, and the carpets and furniture of blue.

T. M. WILSON.

The Cheap Cottage.

WE illustrate this week three designs by Mr. Arnold B. Mitchell, called respectively A, B, and C. A is the cottage we have already illustrated, which has been built at Great Baddow and elsewhere for £110.

In B the full accommodation required by the Departmental Report is given, and cottages on this plan are being built at a cost of £130, which works out at about 4½d. per foot cube. It will be noticed that in this design both wooden floors and plaster ceilings are given, together with higher cupboards and greater cubic capacity in addition to greater floor area and a detached earth closet.

Design C shows the same cottage as modified to suit the requirements of urban districts, and can be built for £130, an additional £10 covering the cost of drains.

MEETINGS.

FRIDAY, DECEMBER 12.

Edinburgh Architectural Association.—Associate members' evening.

University of Manchester.—Professor Beresford Pite on "English Mediæval Architecture"—VI. 7 p.m.

Northern Polytechnic Institute (Holloway).—Mr. Ivor Beaumont on "The Architectural Treatment of Colour in Buildings." 8 p.m.

MONDAY, DECEMBER 15.

Royal Institute of British Architects.—Mr. W. A. Forsyth on "The Repair of Ancient Buildings." 8 p.m.

The Surveyors' Institution.—Professor Ainsworth Davis on "Modern Science and Modern Agriculture." 8 p.m.

University of London (Victoria and Albert Museum).—Mr. Banister Fletcher on "The Louvre and the 'Tuileries,' Paris." 5 p.m.

Royal Society of Arts.—Mr. E. G. Coker on "The Measurement of Stresses in Materials and Structures." 8 p.m.

TUESDAY, DECEMBER 16.

Illuminating Engineering Society.—Mr. P. J. Waldram on "Some Problems in Daylight Illumination, with special reference to School Planning." 8 p.m.

University of London (British Museum).—Mr. Kaines Smith on "Greek Daily Life." 4.30 p.m.

The Institution of Civil Engineers.—Professor Ernest George Coker, M.A., D.Sc., and Mr. Walter Alfred Scoble, B.Sc., Assoc.M.M.Inst.C.E., on "Cyclical Changes of Temperature in a Gas-Engine Cylinder." 8 p.m.

WEDNESDAY, DECEMBER 17.

Royal Society of Arts.—Mr. A. Fell on "The Channel Tunnel." 8 p.m.

THURSDAY, DECEMBER 18.

Architectural Association Camera, Sketch, and Debate Club.—Paper to be read: "The Present Relation of the Three Fine Arts." 8 p.m.

Institution of Electrical Engineers.—Mr. H. C. Gunton on "The Employment of Power in H.M. Post Office." 8 p.m.

Society of Antiquaries.—8.30 p.m.

University of London (British Museum).—Mr. Banister Fletcher on "Greek Theatres and Public Buildings." 4.30 p.m.

University of London (Victoria and Albert Museum).—Mr. Kaines Smith on "The Ideal." 3.30 p.m.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday at the County Hall, Spring-gardens, S.W., Mr. Cyril Cobb, Chairman, presiding.

The Chairman moved a resolution of sympathy and condolence with the relatives of Mr. Walter Emden, who was for twelve years a member of the Council.

Tenders.—Tenders were received for re-drainage work at the Brecknock School, St. Pancras; for road and sewer works on the Tabard-street area; and for provision of residential quarters and refreshment-rooms, etc., at Neal's Farm, Wandsworth Common.

University Site.—The Chairman of the Education Committee was asked whether, in the communications passed between the Senate of London University and the Higher Education Sub-Committee in regard to a site for London University, any offers in writing from or on behalf of the Bedford Estate in reference to the proposed site near the British Museum had been included. The Chairman of the Committee, in reply, stated that any communications which had passed on the subject had been confidential.

Loans.—The Finance Committee recommended, and it was agreed, to make loans to Borough Councils as follows:—Battersea, £4,500 for electricity undertaking; Chelsea, £6,000 for paving works; Islington, £1,696 for paving works.

Theatres, etc.—The Theatres and Music Halls Committee have approved of the following drawings:—Adelphi Theatre—provision of tip-up seats for the pit; 1, Ben Jonson-road (cinematograph hall)—lighting arrangements; Camberwell Palace—ventilation of lavatories; Canterbury Music Hall—draught doors and screens; Cinema de Paris, Bear-street—provision of new entrance from Charing Cross-road; Dalston Theatre—reconstruction of urinal stalls; Holland Park Rink, Holland Park-avenue—iron staircase from entrance-hall to balcony; London Hippodrome—proposed new floor at area level; Madame Tussaud & Son's Exhibition, Marylebone-road—external lighting; 360, Mile End-road (cinematograph hall)—ventilation arrangements; Olympia—lift for concert hall; 71 and 73, Parnell-road (cinematograph hall)—proposed alterations; Piccadilly Hotel—ventilation, heating, and lighting of ballroom; Queen-street and Bridge-road, Hammersmith (cinematograph hall)—fixing four electric signs; 277-281, Queen's-road, Peckham (cinematograph hall)—electrical arrangements; 141-145, Rushey-green, Catford—hot-water heating apparatus; St. George's Hall, Langham-place—alterations to seating; Sangley-road, Catford (proposed cinematograph hall)—wiring arrangements; Staplehurst-road, Hither Green (cinematograph hall)—engine house; Sydenham Rink Cinema—new boiler-house; 221, West Ferry-road (cinematograph hall)—platform for the orchestra.

FIFTY YEARS AGO.

EXTRACT from one of five indignant letters written to the *Builder* of December 12, 1863:—

The Surveyor to the Board of Health at Ely has very wisely obtained a better situation and resigned his old berth, where he has had no sinecure. The nature and amount of the work required from that officer is detailed in the advertisement in your journal of last week; whence it may be learned that the district comprises 17,000 acres, 1,600 houses, and 14¾ miles of highways, and that the happy man who, basking in the smiles of the Board, may be favoured with the appointment is to hold three offices rolled into one, viz., "Surveyor," "Inspector of Nuisances," and "Superintendent of Highways"; *is to give his whole time to the Board*, and to receive the munificent salary of £120, being at the rate of 1¾d. per acre per annum over which he is to exercise his vigilance, and of which he will be permitted to do all the other duties gratis. But in case it may be thought that this number of broad acres is merely placed under his charge so as to give him an opportunity of disporting himself over them with his greyhounds, just by way of obtaining healthy recreation, and that his work is confined to the urban part of the district, then his pay will be at the rate of 1s. 6d. per house per annum, and no pay for attending to the 14¾ miles of road or the other duties which are detailed in the following schedule:—

1. All the duties comprised in the Public Health Act, 1848.
2. Do. in the General Highway Act.
3. Do. in the Nuisances Removal Act, 1855.
4. Do. in the Local Government Act, 1858.
5. Do. in the several Acts incorporated in the foregoing.

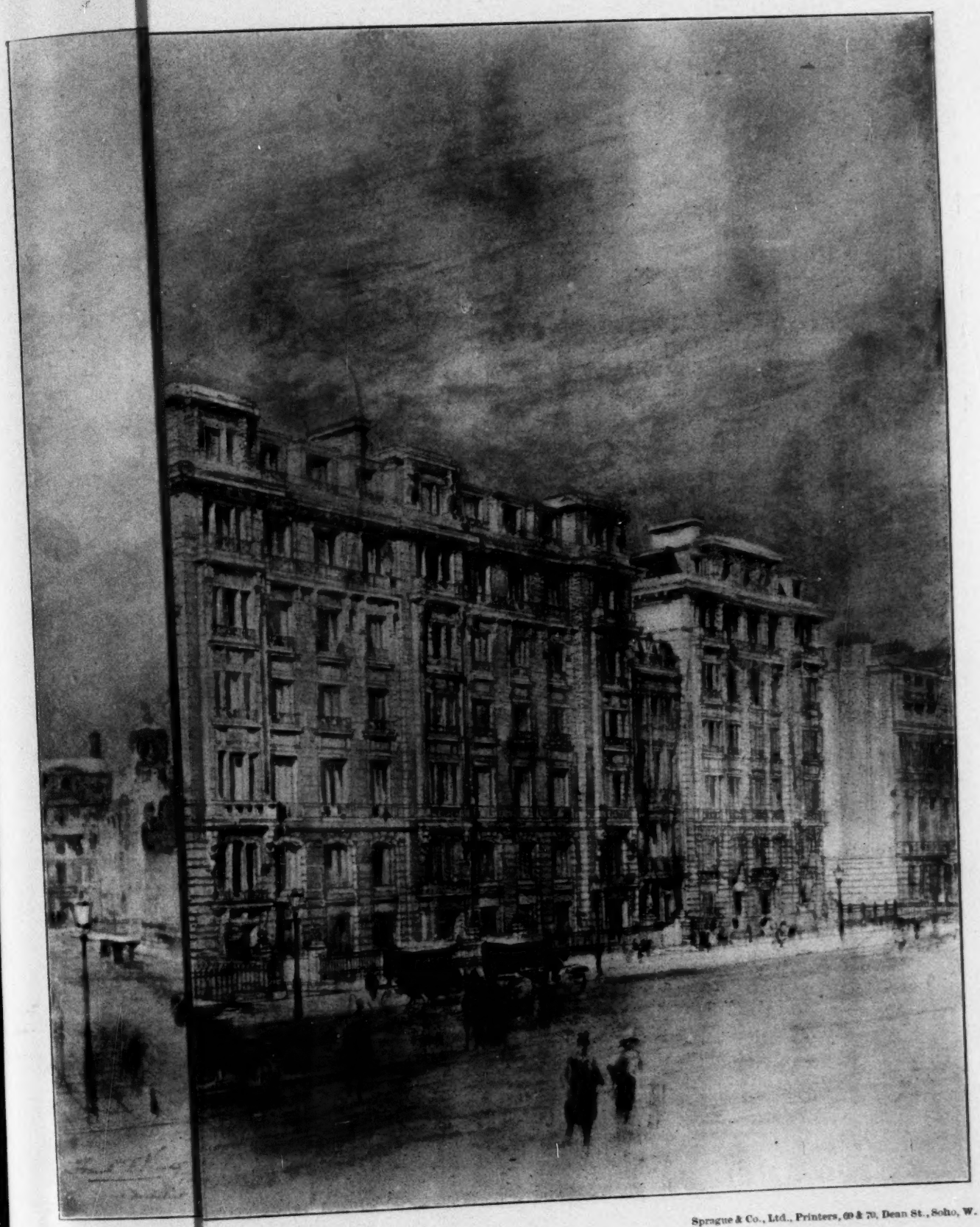
It is indispensable that the Surveyor must be familiar with:—

6. The construction and working of steam engines.
7. Furnaces for the consumption of smoke.
8. Filters.
9. Works of water supply.
10. Sewerage by tubular pipes.
11. House drainage.
12. The making and management of roads.
13. Streets.
14. Pavements.
15. Scavengering.
16. The taking of levels.
17. The value of labour and materials.
18. The preparation of plans.
19. Do. of specifications.
20. Do. of estimates.
21. All such works as come within the province of a local board of health.

*** We consider the list of duties mentioned a little onerous in consideration of the salary mentioned, even though both bread and butter were cheaper fifty years ago.—ED.

SECRETARY TO THE ROYAL ACADEMY.

At a general assembly of Academicians held recently Mr. W. R. M. Lamb, M.A., Fellow of Trinity College, Cambridge, was elected to the Secretaryship of the Royal Academy, rendered vacant by the death of Sir Fred. A. Eaton.



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I.B.A., ARCHITECT.

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FLATS DE LUXE, PORTLAND PLACE

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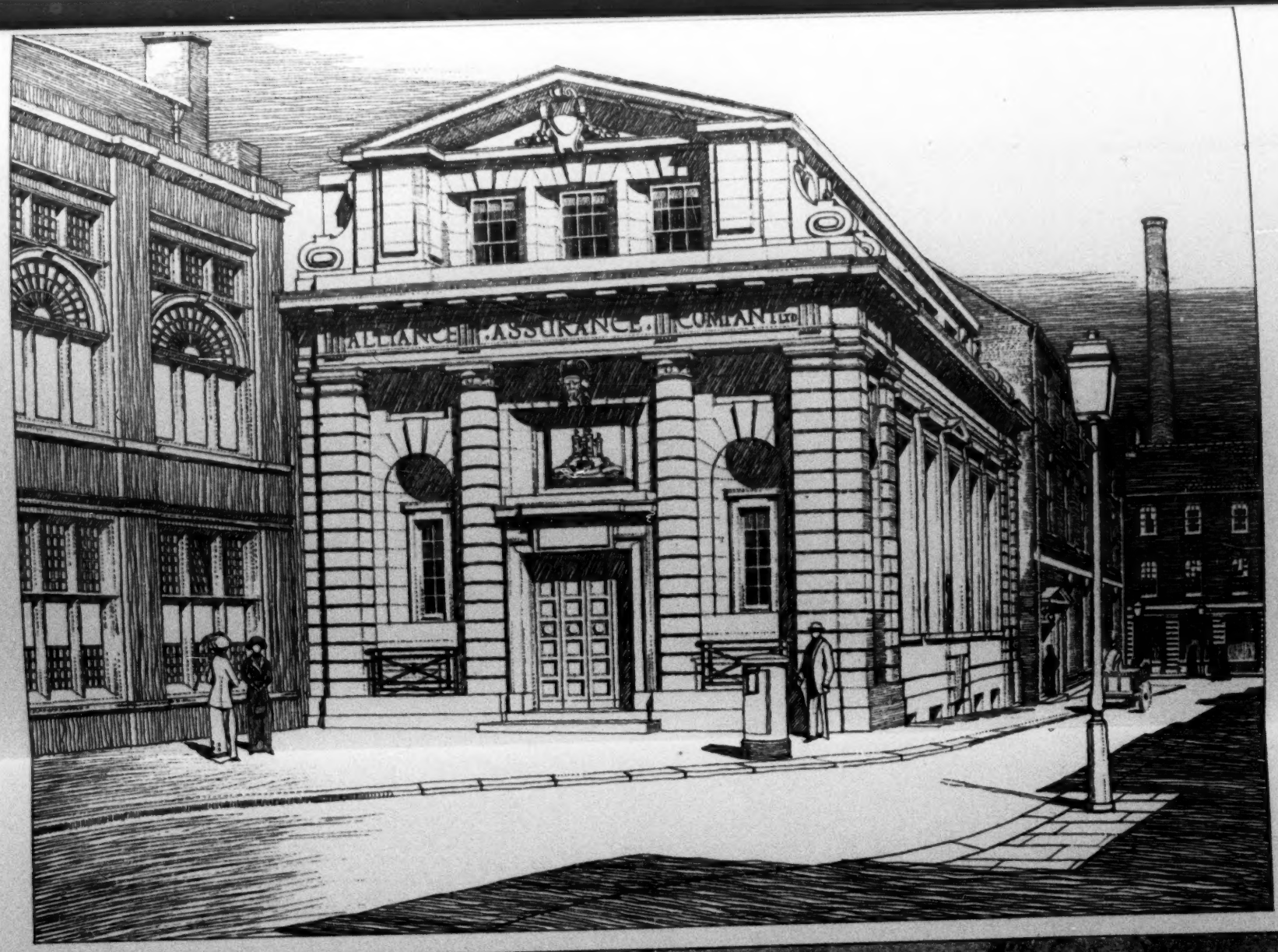
PORTLAND PLACE, W.—Mr. Frank T. Verity, F.R.I.B.A., Architect.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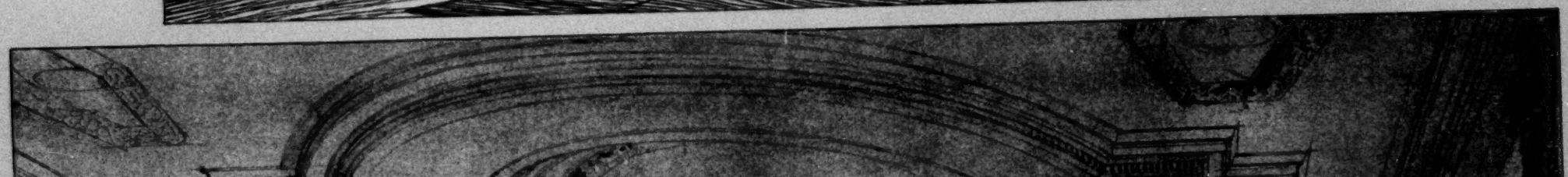

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PRINCE OF WALES' ELECTRIC THEATRE, HARROW ROAD, W.—Mr. T. M. Wilson, Architect.

Sprague & Co., Ltd., 69 & 70, Dean Street, Soho, W.

RUTLAND PARK CINEMA THEATRE.—Mr. T. M. Wilson, Architect.

Mr ARNOLD MITCHELL'S

STANDARD COTTAG

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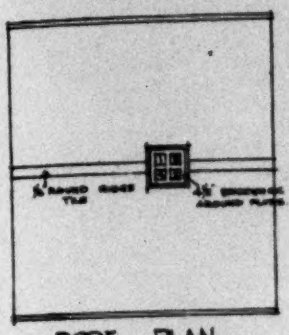

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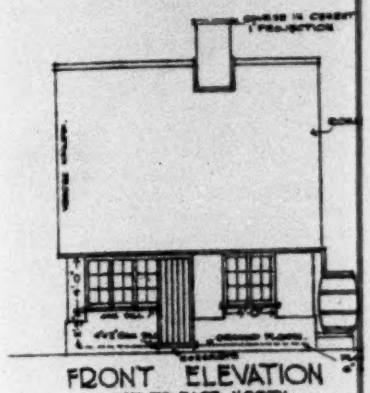

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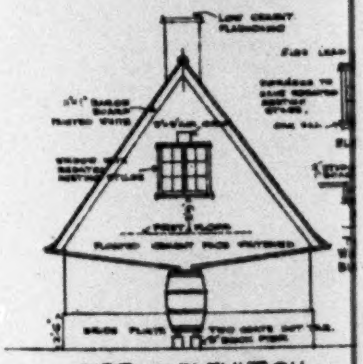

SIDE ELEVATION

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IN ACCORDANCE WITH THE URBAN MODEL BYELAWS & THE REPORT OF THE DEPARTMENTAL COMMITTEE

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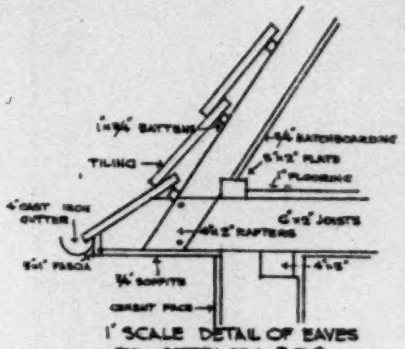

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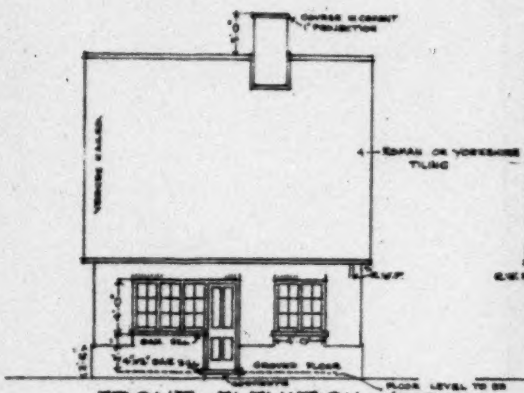

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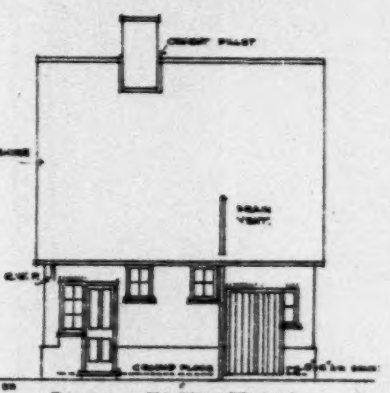

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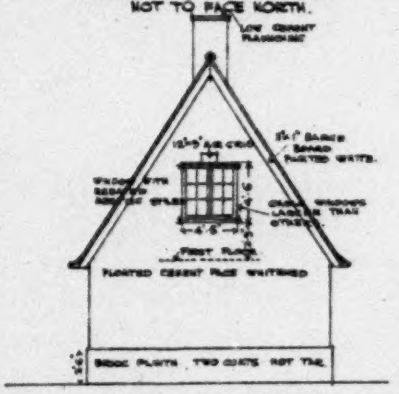

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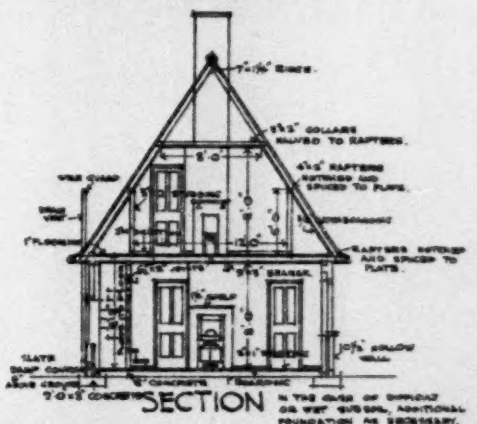
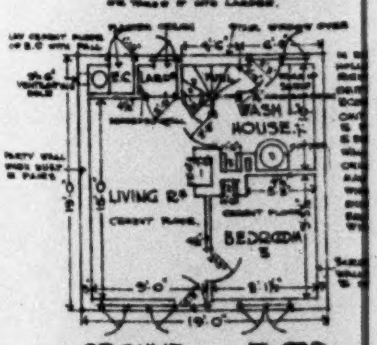


SECTION

IN THE CASE OF DAMPOUS OR WET SUBSOIL, ADDITIONAL FOUNDATION AS NECESSARY, MUST BE ADDED.

FOR DRAINAGE SEE SPECIFICATION ADJUST DRAINAGE AS NECESSARY TO SUIT LOCAL AUTHORITIES.



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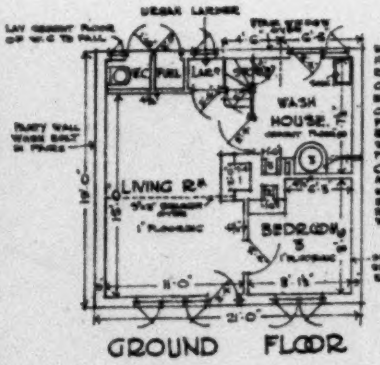
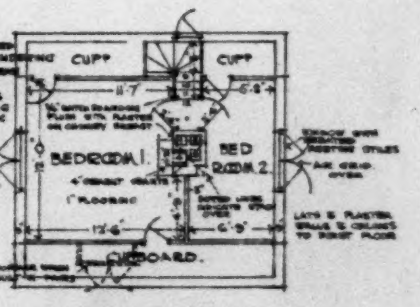


GROUND FLOOR

NOTE.

IN EXPOSED POSITIONS FOLLOW WALLS CONTINUED RIGHT UP IN CEMENT RENDERING OMITTED. WHERE EXTREME ECONOMY IS REQUIRED CHIP BARGE BOARDS IN PROJECTION OF TILING & SLIPTILES ON BRICK WALL WITH 2" PROJECTION ONLY. CEMENT RENDERING MAY BE OMITTED WHERE BRICKS ARE EXCEPTIONALLY HARD BRICKWORK TO BE WHITEWASHED.

PLASTER CEILINGS TO ALL ROOMS



FIRST FLOOR.

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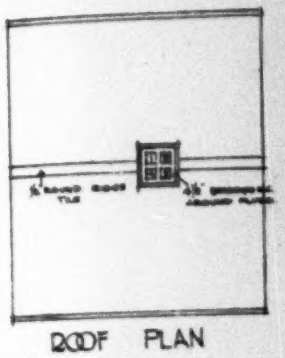

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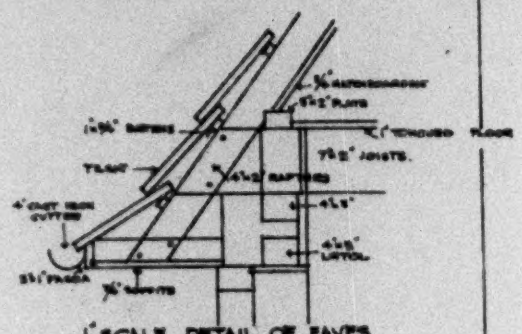

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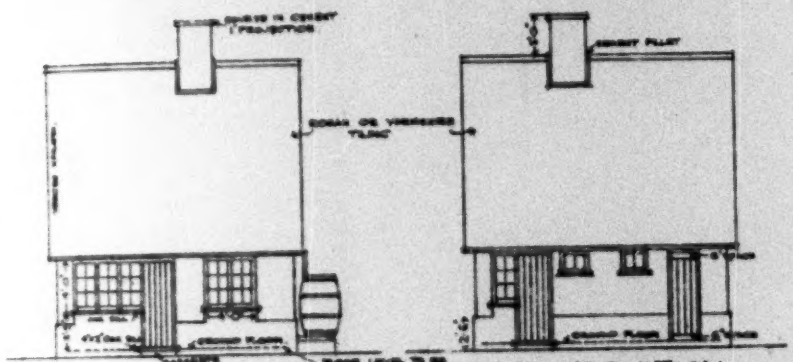

FRONT ELEVATION
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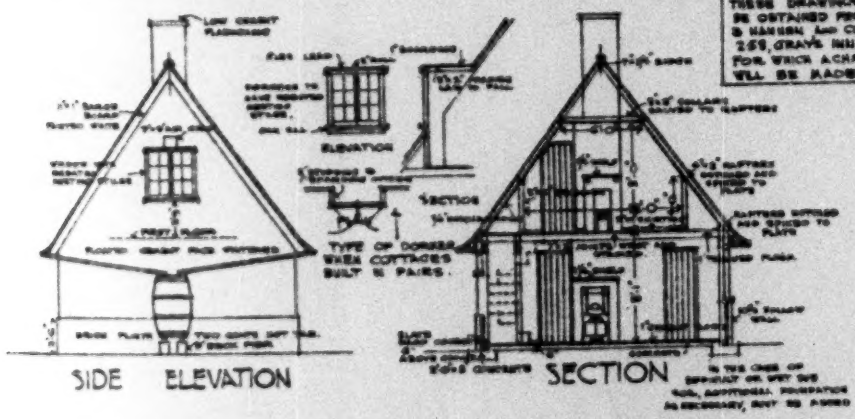
BACK ELEVATION.



SIDE ELEVATION

SECTION

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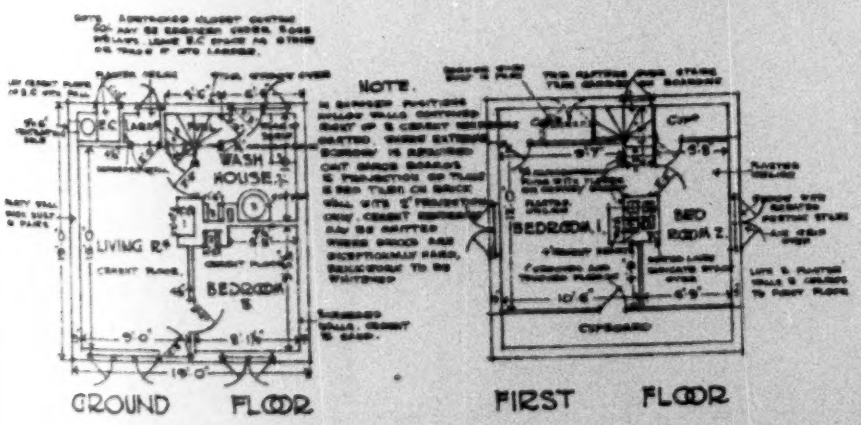

GROUND FLOOR

FIRST FLOOR

SCALE OF

Mr ARNOLD MITCHELL'S

STANDARD COT

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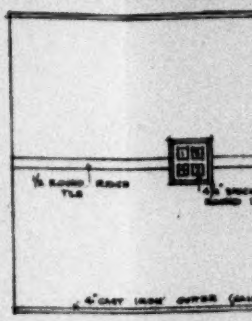
IN ACCORDANCE WITH
MODEL BYELAWS &
OF THE DEPARTMENT



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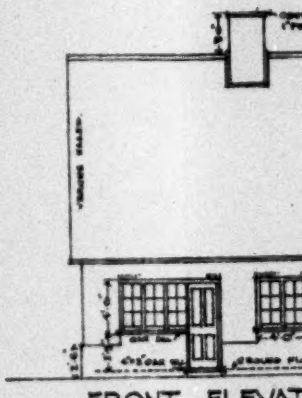

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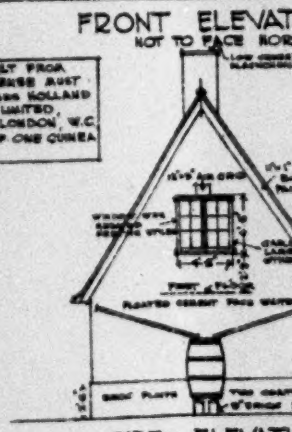

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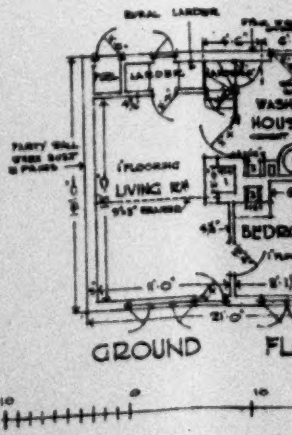

GROUND FL

MR ARNOLD MITCHELL'S

STANDARD COTTAGE. B.

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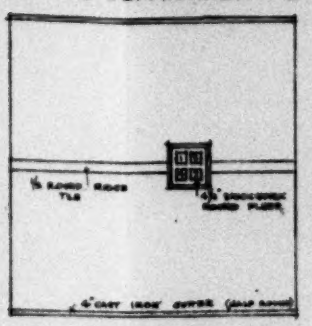
IN ACCORDANCE WITH THE RURAL MODEL BYELAWS & THE REPORT OF THE DEPARTMENTAL COMMITTEE.



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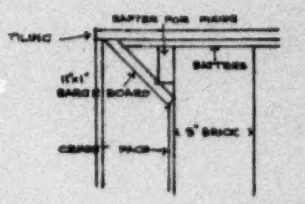
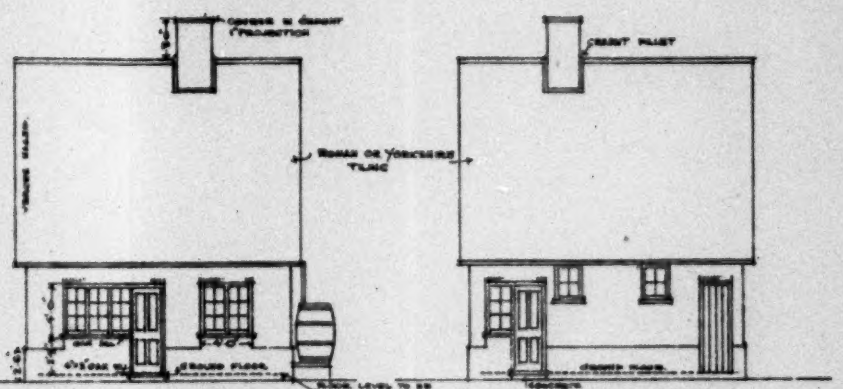


1" SCALE DETAIL OF BARGE BOARD.



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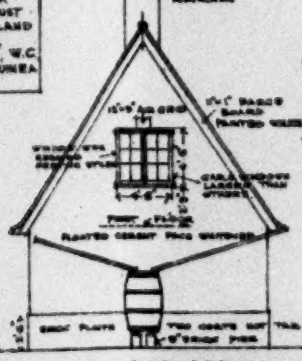

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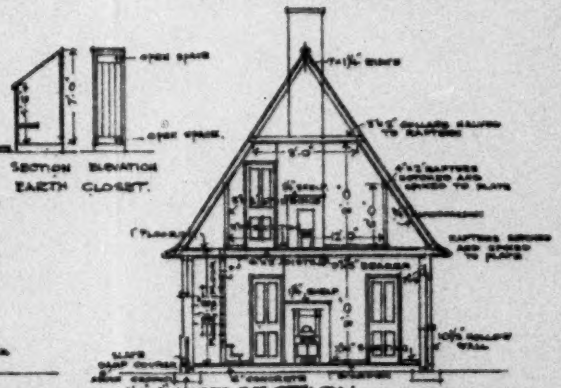

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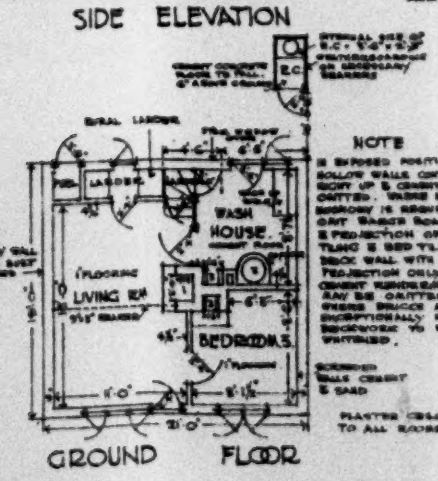
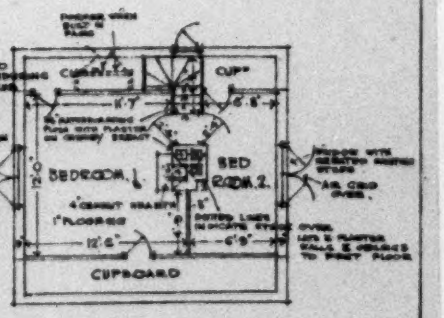


GROUND FLOOR



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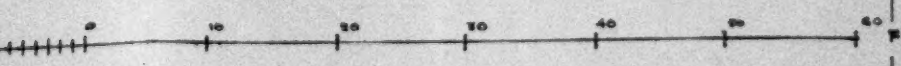

MR ARNOLD MITCHELL'S

STANDARD COTTAGE. C.

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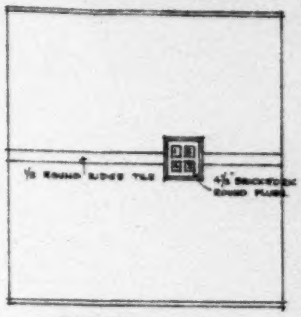
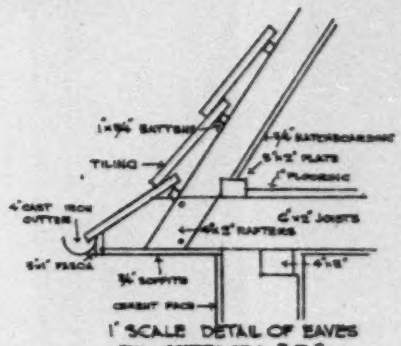
IN ACCORDANCE WITH THE URBAN MODEL BYELAWS & THE REPORT OF THE DEPARTMENTAL COMMITTEE



ROOF PLAN.



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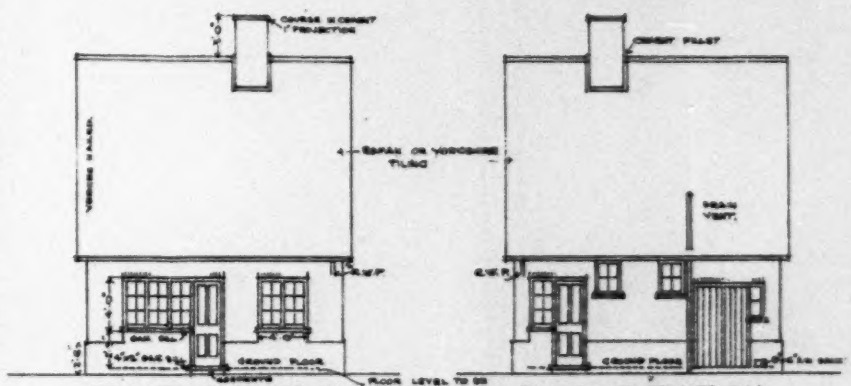

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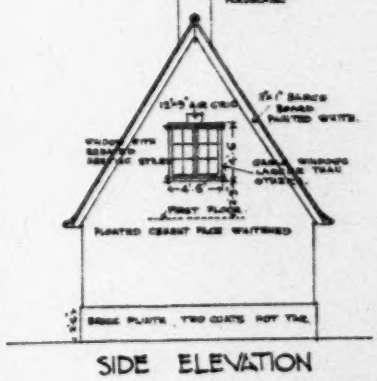

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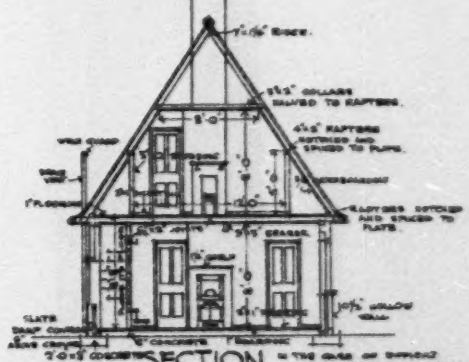

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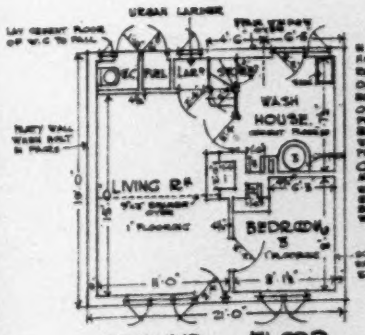

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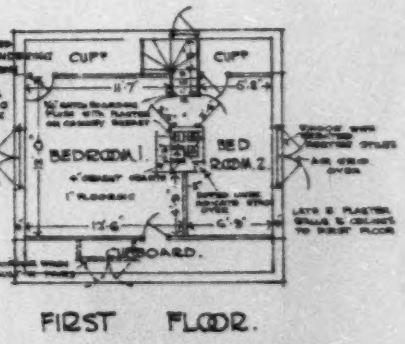

FIRST FLOOR.

ARNOLD CONSTABLE & CO
292 OXFORD ST & 57
LONDON W.C.

PHOTO-LITHO. SPRAGUE & Co LTD 69 & 70, DEAN STREET SOHO, W

MR. ARNOLD MITCHELL'S STANDARD COTTAGES. A. B. AND C.

A., £110. B., £130. C., £140.

CO

CROSS HOUS
NEWCAST

THE building occupies a gate-road, was built for M Turnbull, a well-k to provide office a and tenants, amon Revenue Land V Ocean Accident a Messrs. Bass, R and the Newcast Company, Ltd.

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The building h Westgate-road, ar Fenkle-street; th width, the back 48 ft. wide, and th is 75 ft. from fro the completed str

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The principal obtained from th not only of ferro an additional prec by ferro-concrete The stairs are fir central well a pa by Messrs. Wayg the lift gearing be platform hidden

A useful app represented by 12 ft. square on 9 in. thick.

Fig. 2 is a view graph taken duri clothing, which i concrete construc

The elevation with ordinary co to the roof, and f floor is in grey masonry is 5 in. stonework is 7½ i of 7 in. of concre

The bay windo the completed b cantilever extens main cornice at supported. The end of the bui Commerce," ar Bromsgrove Gui

The Cross Hou by Messrs. J. T FF.R.I.B.A., o whom details of were prepared Partners, of W contractors were Newcastle-upon-

Some of our drawing of the b year in the Roy

MEASUREM
MATERIALS

ON December Dr. E. G. Coker Engineering an City and Guilds gave the first Lectures on " in Materials and

CONSTRUCTION SECTION.

CROSS HOUSE OFFICE BUILDING, NEWCASTLE-UPON-TYNE.

THE building illustrated in Figs. 1 and 2 occupies a prominent position in Westgate-road, Newcastle-upon-Tyne, and was built for Messrs. Dickinson, Miller, & Turnbull, a well-known local firm of solicitors, to provide office accommodation for themselves and tenants, among the latter being the Inland Revenue Land Valuation Department, the Ocean Accident and Guarantee Corporation, Messrs. Bass, Ratcliffe, & Gretton, Ltd., and the Newcastle Timber and Hardwood Company, Ltd.

Owing to the valuable nature of the site it was desirable to economise interior space as far as possible—a condition fulfilled by the adoption of the ferro-concrete skeleton system in which all loads are carried by floor and wall beams and transmitted direct to the ground by columns.

The building has a frontage of 72 ft. on Westgate-road, and one of the same length on Fenkle-street; the rounded front is 26 ft. in width, the back between the two streets is 48 ft. wide, and the total length of the building is 75 ft. from front to back. Fig. 1 illustrates the completed structure.

The entire weight of the building and its contents is carried by fifteen main columns and two small columns extending only up to first-floor level in the rounded front. The columns are finished below the basement floor with extended bases, ranging from 4 ft. 6 in. to 8 ft. square, distributing the load over the earth at the rate of not more than 2 tons per square foot.

The principal staircase, to which access is obtained from the Westgate-road entrance, is not only of ferro-concrete throughout, but, as an additional precaution against fire, is enclosed by ferro-concrete partition walls 4 in. thick. The stairs are finished in terrazzo, and in the central well a passenger lift has been installed by Messrs. Waygood & Co., Ltd., of London, the lift gearing being carried on a ferro-concrete platform hidden in the roof.

A useful application of ferro-concrete is represented by a fire-resisting strong-room 12 ft. square on the third floor, the walls being 9 in. thick.

Fig. 2 is a view of the skeleton from a photograph taken during the addition of the masonry clothing, which is carried entirely by the ferro-concrete construction.

The elevation is in Portland stone, backed with ordinary concrete from the ground floor to the roof, and from the basement to the ground floor is in grey granite. The plain ashlar masonry is 5 in. on the bed, and the rusticated stonework is 7½ in. on the bed, with an average of 7 in. of concrete backing.

The bay windows to be seen in the view of the completed building (Fig. 1) are carried by cantilever extensions of the floor beams, and the main cornice at fifth floor level is similarly supported. The carved figures on the front end of the building represent "Labour and Commerce," and were executed by the Bromsgrove Guild of Applied Arts.

The Cross House Office Building was designed by Messrs. J. T. Cackett and R. Burns Dick, FF.R.I.B.A., of Newcastle-upon-Tyne, for whom details of the ferro-concrete construction were prepared by Messrs. L. G. Mouchel & Partners, of Westminster, and the building contractors were Messrs. Davidson & Miller, of Newcastle-upon-Tyne.

Some of our readers doubtless noticed the drawing of the building which was on view this year in the Royal Academy Exhibition.

MEASUREMENT OF STRESSES IN MATERIALS AND STRUCTURES.

ON December 1, at the Royal Society of Arts, Dr. E. G. Coker, M.A. (Professor of Mechanical Engineering and Applied Mathematics at the City and Guilds of London Technical College), gave the first of a series of three Cantor Lectures on "The Measurement of Stresses in Materials and Structures."

Professor Coker said that the study of the behaviour of materials under load had always exercised the greatest interest, whether regarded as a field of mathematical or philosophical inquiry or as an experimental science, for the labours of a vast number of investigations had slowly built up a science of the strength of materials which rested on an assured basis. Modern needs and the ever-widening field of inquiry caused by the quickening influences of discoveries in other branches of science were continually leading to new and more exacting demands on metals and other like bodies, especially for constructive purposes, and it was therefore not an unprofitable task to attempt to review that part of the science of the strength of materials which was more directly connected with experimental inquiry, since this aspect of the subject had the most important bearing on the design and construction of all kinds of fixed and moving structures subject to static and dynamic loads. Theoretical investigations had, in a very large number of cases, given exact solutions of the stress distribution in elastic bodies on definite diametrical shapes, which latter, in some instances, approximated very closely to the forms of actual structures, but in the great majority of instances this is not the case, since the forms and disposition of measures and structures were decided by a number of circumstances which led to complicated shapes not amenable to calculation, and not always the most perfect, owing to practical difficulties of construction. For example, steam boilers, more often than not, were cylindrical vessels with flat ends, and the reasons for giving them this form were well known and practically justifiable, although, when considered merely as vessels for resisting internal pressure, they were not the most perfect that could be devised. Very great difficulties had confronted investigators desirous of ascertaining the stress distribution in any given body. The guiding principle in the experimental work accomplished in this field of inquiry was the well-known Hook's law. The lecturer proceeded to exhibit a number of diagrams showing the compression suffered by different materials subjected to a load of 5,000 lb. to the square inch, and pointed out that as in the laboratory they could not employ great lengths of material they had to be contented with a few inches and had to measure the expansion very accurately. To show how this could be done he exhibited a bar of steel in a simple frame, and by the utilisation of a ray of light the minute expansion of $\frac{1}{10000}$ in. was magnified so as to be measurable. In many cases they were able to make experiments on materials and from the measurements of strains made infer the stress, because there was an invariable relation between strains and stresses for any given material. He showed a diagram giving the results of the measurements made in connection with the Bankers' Trust Building in New York. Here they measured the loads placed upon one of the columns as the building was being erected, readings being taken from the time the twelfth story was put on till the twenty-eighth. Professor Coker explained the use of the extensometer for measuring the

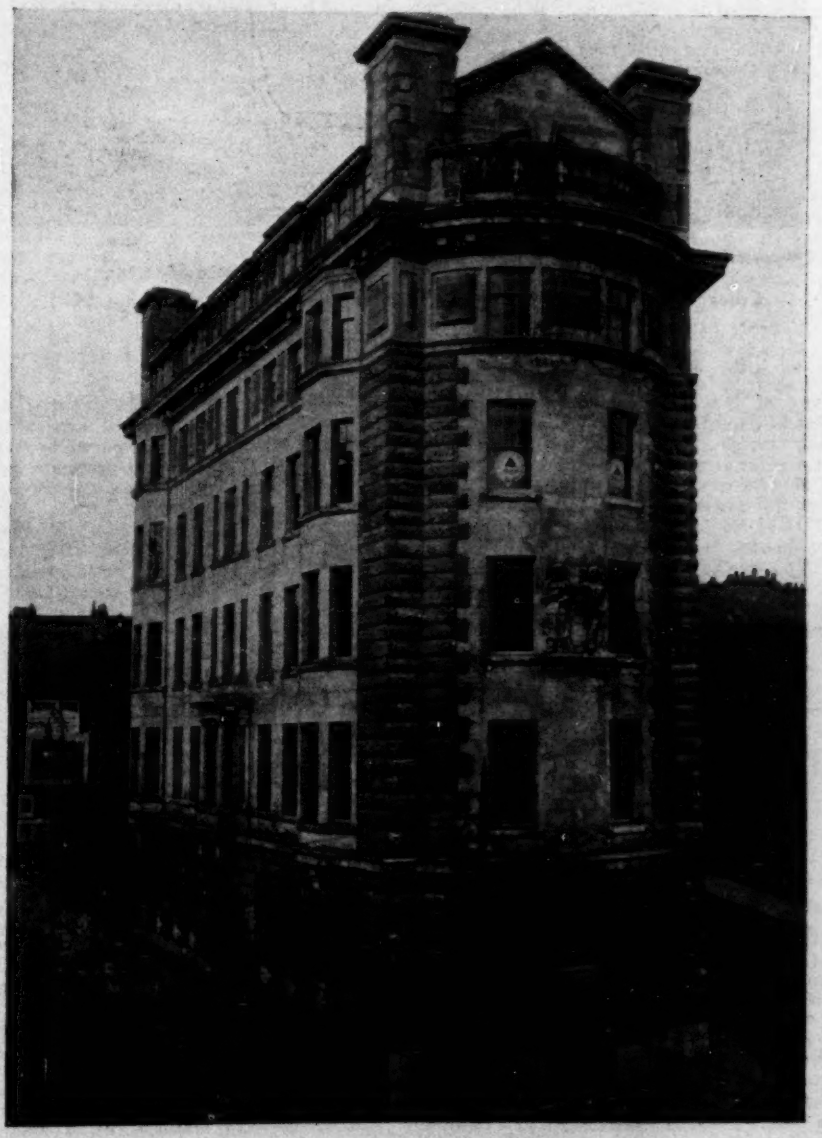

Fig. 1. Cross House Office Building, Newcastle-upon-Tyne.
Messrs. J. T. Cackett & R. Burns Dick, FF.R.I.B.A., Architects.

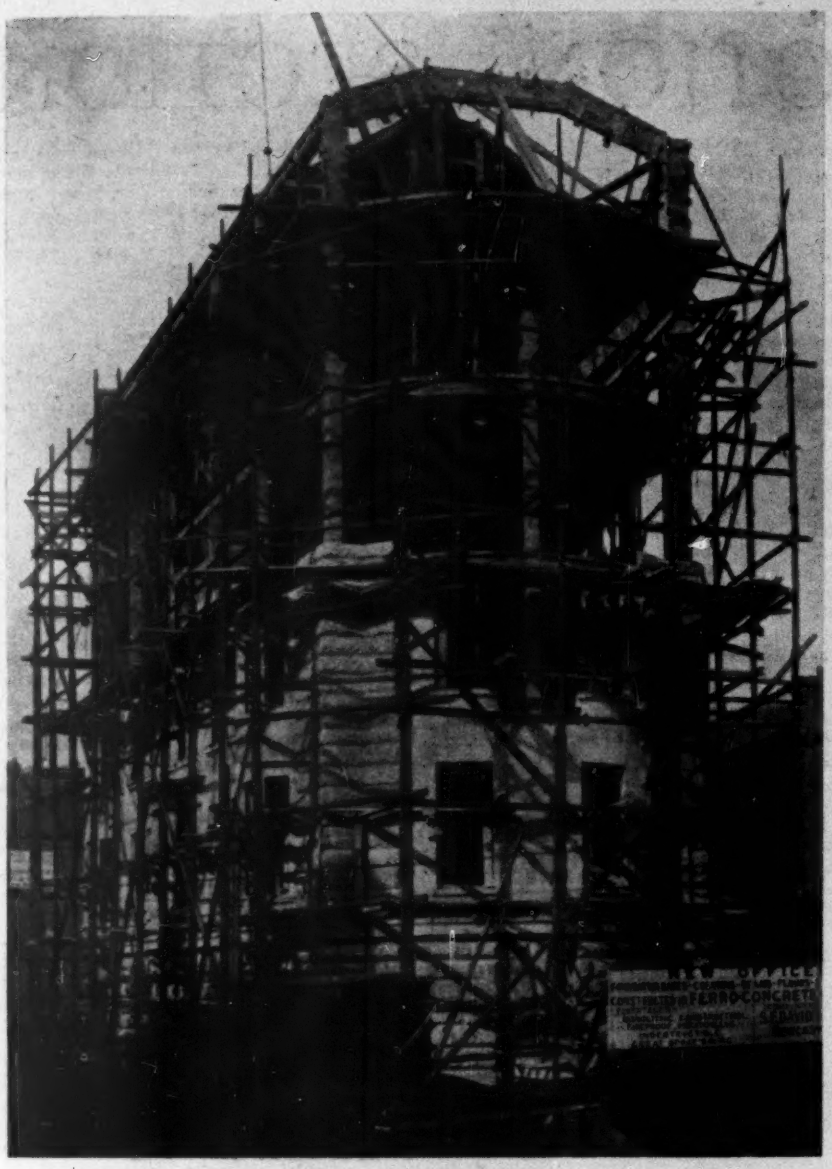

Fig. 2. Building Masonry Walls on Ferro-Concrete Skeleton: Cross House Office Building, Newcastle-upon-Tyne. (*See page* 645.)

Messrs. J. T. Cackett & R. Burns Dick, FF.R.I.B.A., Architects.

stresses of beams, and showed diagrams of results in regard to steel bars, slate, and reinforced concrete. He pointed out how, if they took a piece of steel and loaded it so that the line of load was not central, then the strains across the centre were not uniform; and this method of loading was important as enabling them to determine how to measure stresses on the inside of a boiler. If they wished to measure the stresses around the joints of a boiler, both inside and outside, they could, by using hydraulic pressure, put any amount of load on the plates of the boilers, and they could infer the result on the inside. The importance of this question was sufficient to induce Messrs. Barraclough & Gibson, in New South Wales, to make very prolonged researches into the subject. The lecturer, by means of diagrams, gave the results of these investigations and said it was a very fine piece of work of measurement of strains and inferring stress distribution. He further described the work done by Professor Karl Pearson with models constructed in jelly to find out the stresses occurring in reservoirs, the results of which were generally verified by the experiments of Messrs. Wilson & Gore with india-rubber.

In his second lecture on Monday last Professor Coker dealt principally with electrical measurements, and by means of lantern slides he showed the thermal effect of load and its application to the measurement of stress intensity; thermo-electric measurements of stress in tension and compression members; radiation and conduction effects; the measurement of stress distribution in a beam; the stress distribution in a column; the effect of shear stress; and thermo-electric effects of stress in metals.

The lecturer remarked on the previous occasion they saw that the amount of stress produced by mechanical measurements within the elastic limit of a material was extremely small. That evening he proposed to consider the effect of electrical measurements, and it would be observed that the effect was like the effect produced by mechanical strain in that it was proportional to the stress. It was well known that some materials, when tested, showed a considerable rise of temperature at the section of fracture, but Weber found that within the elastic limit slight cooling took place when a pull was exerted. His experiments and conclusions demonstrated that the change in temperature was proportional to the applied stress, and also to the coefficient and expansion of the material. Beyond the elastic limit of a metal a rise of temperature of relatively large magnitude occurred in ductile metals with all kinds of stresses. The thermal changes produced within the elastic limit were more fully investigated later on by Sir William Thomson, who deduced the general equation of thermo-elasticity from the principles of thermo-dynamics, and showed that the thermal effect for small stresses was directly proportional to the stress intensity. In the case of thermal effect they got another phenomena of almost the same type as in mechanical measurements—they got a very minute change in the temperature of a body when it was stressed. The lecturer then showed a number of experiments to illustrate his point, but remarked that the change was so very minute that such experiments were best conducted in the laboratory, where there was not the slightest breath of air. He also showed, by means of a series of diagrams, the stress on an ordinary steel bar placed in a testing machine, and remarked that the thermal effect was proportional to the application of the load when applied uniformly. One of the elements in Sir William Thomson's formulæ was, he said, the expansion of a bar for any given temperature. Explaining the experiment he had made with a steel tube, Professor Coker said that in order to get different temperatures hot water was circulated round the tube. In that way he was able to determine what was the coefficient of expansion when there was no load, when there was a load of 10,000 sq. in., 20,000 sq. in., and so on, above the elastic limit of the material. In the result practically all the slopes were the same all the way through, although the loads varied up to and beyond the elastic point of the material. It was to be observed that in steel there was very little change in the elastic tension of the material short of the breaking-point, and the same remark applied to brass. For all practical purposes it might be said that the coefficient of expansion did not vary in any conditions which they were likely to meet in a test. The corrections to be applied in the actual readings were somewhat large, and that was one of the defects of this method of measurement. The experiments, however, enabled them to show several things which were of very considerable importance. Some years ago it was believed that the experiments actually indicated a lower elastic limit, but the lecturer, by means of diagrams, showed that this was not really the case; and he said that one could easily see from the experiments that the use of the thermopile could be employed in ordinary workshop operations to obtain a yield-point. Dr. Coker next exhibited a number of diagrams showing the results of experiments on a brass rod which gave exactly the same rise in the yield-point as were obtained when experiments were made by mechanical measurements. One of the advantages of the thermal stress method of measurement, he observed, was that they were able to get rid of any effect due to shear; and to illustrate his point the lecturer threw some diagrams on the screen, showing a series of experiments made upon different materials. There was, he said, no difficulty in applying thermal measurements to any material they wanted to test, even if they took such an unpromising material as cement. If, however, they were to use cement which was only a few months old the results were such that they would not be justified in taking them as correct, but if they took cement which was several years old, or even less, they got thermal effects just the same as they did with metals. The lecturer gave the results of an experiment upon a block of cement some years old, where it was found that the stress and thermal effect were very closely proportional to one another, which, he said, showed that the thermal effect could be used for such a material provided that it had settled down, as it would do in a building or other structure.

JOINTLESS FLOORING.

A NOTEWORTHY detail in modern building construction is represented by the various forms of jointless floor-covering systems which are largely employed in buildings of every class. The sanitary advantages of floor surfaces incapable of affording lodgment for dirt and micro-organisms are sufficiently obvious, and, as materials of the kind to which we refer are equally applicable to the formation of skirtings and to the covering of walls, there is no reason to wonder at their increasing popularity among architects.

Among other materials employed for the construction of jointless flooring and wall coverings, that known as Dolomentis has been widely used, and, while complying with all essential requirements of structural and hygienic character, it also compares favourably in respect of cost with other types of flooring.

Being applied in a plastic state to the surfaces intended to be covered, an impervious and jointless layer is the result, and by the formation of a coved skirting between the floor and walls hygienic conditions are absolutely assured.

Dolomentis applied in two separate layers to a total thickness of $\frac{1}{4}$ in., the under layer being of resilient nature, and capable of acting as a cushion for the hard-wearing upper layer, the flooring being elastic and quiet to the tread. It is easily kept clean owing to its impervious, non-absorbent surface, and, being non-flammable, it is an appropriate addition to fire-resisting buildings. The material can be laid on concrete,

stone, timber, and other floors, and large quantities have been employed for covering old timber floors, thereby converting uneven and insanitary surfaces into level and hygienic floors. Dolomentis produced in two qualities, one for public and domestic buildings and the other for factories and industrial establishments. To illustrate the wide applicability of this material we may mention the facts that it has been adopted as a substitute for wood decking in ships, and that after having been subjected to severe tests by the Board of Trade it has been approved by that body for the purpose mentioned.

For the information of our readers it may be stated that in applying Dolomentto a new wood floor the boards should be rough and firmly nailed to joists with open joints. If the sub-floor is of concrete the latter should be brought up to within ¾ in. of the finished floor level and finished spade faced without screeding. It is very important that the concrete should be thoroughly dry before being covered. Where used on walls Dolomentshould be applied direct to the brickwork, cement rendering being quite unnecessary, and we may point out that the material can be utilised with economy as a pleasant substitute for tiles or glazed brick in dadoes. It is important to see that lime shall not come into contact with Doloment, whether in concrete or plaster work or otherwise.

Where laid on stone paving the surface of the latter should be free from greasy matter, the joints raked out, and the stone hacked, and where laid on old boarded floors no special preparation is required, but it is necessary, of course, that the doors should be shortened to allow for the thickness of material added.

Owing to its hygienic character Dolomentis particularly suitable for hospitals, sanatoria, schools, and public buildings generally, and as the material is produced in various colours pleasing effects are readily obtained, especially by the adoption of various patterns, borders, and ornamental details supplied by the manufacturers.

Finally, we may point out that the flooring can be finished with a flat non-slip surface or with a fine face capable of taking a high polish and giving the appearance of polished linoleum.

CONSTRUCTION NOTES.

German Committee on Reinforced Concrete.

APPOINTED by the German Association of Portland Cement Manufacturers, the technical Committee now engaged in studying various aspects of reinforced-concrete construction has received generous support from the Prussian and Imperial Governments, the Concrete Union, the Cement Union, the Society of Civil Engineers, and the Society of Mining Engineers, as well as from the originating Association, the funds placed at the disposal of the Committee amounting to £48,000—a sum indicating the importance attached in the German Empire to the scientific investigation of reinforced concrete.

Numerous tests of beams have been conducted, and the members in question will be preserved at the Cement Museum, Heidelberg, for the information of visitors, and particularly of building superintendents and foremen. Among the investigations undertaken by Mr. Scheit, at Dresden, may be mentioned tests of T-beams under dead loads, and inquiries into the influence of vibrations on the resistance of concrete, and into the influence of variations and repetitions of loading. At the Lichterfelde Laboratories investigations have been made into the protection afforded by certain qualities of cements to embedded steel, and at the same laboratories fire tests have been conducted on two model houses measuring 4 metres square by 8 metres high, while the tests on the strength of columns have been continued. Professor Bach, of Stuttgart, has undertaken the investigation of the relation between deformations and resistance to flexure in beams and slabs. Professor Berndt, of Darmstadt, has made comparative tests of cubes moulded in the laboratory, and of others made in contractors' workshops, and also of cubes taken from works actually executed. These and other important researches in progress are sufficient to indicate the extremely valuable nature of the work undertaken by the Committee, which might well be taken as a model for imitation in this country.

Foundations of the Equitable Building, New York.

THE foundations of the Equitable Office Building, under construction in Lower Broadway, New York, are of the cofferdam type. The cofferdam, which is to be built up from solid rock 80 ft. below street level, will extend 167 ft. on the Broadway side, 150 ft. on the opposite side, 304 ft. on the north, and 315 ft. on the south, its construction involving the employment of reinforced-concrete caissons 80 ft. deep, and sunk side by side to form a cofferdam with the total length of 936 ft. As the caissons will be filled with concrete after they are all in position, the whole work will be monolithic throughout—a condition which is absent in cases where concrete-filled timber caissons are adopted.

It is estimated that the new building, replacing the structure destroyed by the disastrous fire of January, 1912, will weigh over 200,000 tons, the steel skeleton representing a weight of 45,000 tons. For comparison we give below the weights of some large buildings erected in New York during recent years:—

Name of Building.	Weight of Steel Frame.	Total Weight.
Equitable (New) ...	45,000 tons.	200,000 tons.
Municipal.....	23,000 ,,	188,500 ,,
Woolworth	25,000 ,,	103,000 ,,
Singer	6,100 ,,	82,500 ,,

The Corrosion and Rusting of Iron.

AT a meeting on Monday, December 1, of the Society of Engineers (Incorporated), Mr. Eric K. Rideal read a paper on "The Corrosion and Rusting of Iron," of which the following is an abstract:—A certain number of failures in constructional ironwork may be attributed to corrosion, and rusting is a problem of the greatest importance to the water engineer. The author is a supporter of the electrolytic theory of corrosion, and believes it to be perfectly tenable when due attention is paid to considerations such as alterations in the solution-pressures on crystal surfaces, and to the phenomenon of passivity shown by this metal. Corrosion is due either to internally generated electric currents or to those from external sources. The theory is applicable to the problems of rusting in ferro-concrete, water-pipes and structural ironwork, as well as to the action of stray currents from tram-rails, damp electric light leads and telephone cables. In the light of that theory, both the plating of iron with metals or covering the surfaces with paints and varnishes are to be regarded as means to an end, namely, to prevent the formation of local "corrosion cells." The effect of pitting in steel pipes is to be attributed to inclusions of slag and oxides of iron. Metallic coatings must be perfectly uniform in character, otherwise rusting may be augmented instead of retarded by such processes, while paints should be applied to clean surfaces and should possess certain definite characteristics, such as high specific electrical resistance, a pigmentary vehicle that does not readily liberate water during the process of aerial autoxidation and is not permeable to water vapour when thus oxidised, and pigmentary particles not widely separated from iron in their electrochemical potential. The protection of boilers such as zinc being placed in the boiler or the application of an externally supplied current are direct applications of the theory. The various methods of testing corrosion are all open to criticism, and the effect of additions to pure iron has not been sufficiently well investigated for any definite conclusions on the subject to be drawn.

Examinations in Science and Technology, 1914.

A PAMPHLET just issued by the Board of Education contains the subject-matter of Regulations for Examinations in Science and Technology, 1914, corresponding to the separate publications issued for the present year, and also gives the syllabuses upon which will be based the examinations to be held by the Board in 1914. No material alteration has been made in the regulations, except that the submission of drawings as testimonies of study by competitors for scholarships taking the higher examinations in machine construction and drawing, building construction, or naval architecture will no longer be required. The syllabuses fall into two groups, the first including those of subjects in which the Board hold general examinations, and the second including the syllabuses of subjects that may be offered for awards in science, but in which there is no general examination. In each of the subjects for which a syllabus is given, except general biology and freehand drawing, a lower and a higher examination will be held, and, as announced this year, the examinations in sound and light will be combined. At the end of the pamphlet will be found time-tables of the examinations to be held next year.

New Premises: 81 & 83, Edgware-road, W.

Mr. Philip W. Davis, A.R.I.B.A., Architect.

The general contractors were Messrs. I. C. Tennant & Co., of Willesden, and the chief subcontracts were with Messrs. Redpath, Brown, & Co. for constructional steelwork, and Messrs. Burt & Potts for iron staircases and casements.

THE BUILDING TRADE.

THOUGHTS ABOUT COST KEEPING.—III.

APROPOS of the statement made in the first article of this series, to the effect that a specially-devised card-system would provide a flexible and adaptable method of cost keeping, a correspondent writes:—"I read your article in this week's *Builder* on 'Cost Keeping' with great interest, and, as one who started with the old-fashioned method of keeping costs in books and now uses cards, I wish to state that when you say that the card system seems to be the best you hit the nail on the head." The letter is accompanied by a card used for recording joiner's costs; on one side joiner's time is entered, presumably from time-sheets, and the cost extended into money columns; space is left at foot for the insertion of the materials' cost; on the other side appear the name and number of the contract, a short description of the work, and below rulings are arranged, side by side, for the insertion of the work as taken in the quantities with its estimated cost and as executed at cost; a portion is reserved for recording the machine time.

Shop and job labour are given separately, and other columns give carriage and cost of labour and materials at per foot. The whole is neatly arranged on the two sides of a card measuring about 8 in. by 5 in.

Perhaps others who may be interested will contribute information on this important subject.

In the last article the difficulty of getting adequate descriptive information from the workmen's time-sheets was under discussion, and it appeared that neither weekly nor daily time-sheets gave satisfactory results.

The fact is that there is a conflict of principle involved; for the purpose of paying wages it is preferable that the time record should be based upon the man; if it was always a case of one man one job per one day, or per one week, it would be equally convenient that the record should be based upon the man for the purpose of cost keeping, but there are frequently a number of men employed upon one job; the number sometimes fluctuates, and men are often transferred from job to job, hence for the purpose of cost keeping the time record needs to be based upon the job, or that section of it of which the unit cost is to be determined. The natural inference, therefore, is that there should be separate time-sheets for every such section; but in a building business of any considerable size this would involve so many time-sheets that the labour of correlating them for the purpose of ascertaining each man's wages would be excessive having regard to the time available between making up and paying wages.

The work may be lightened by substituting a card system for a time-sheet system, sectionising the job into units of a manageable size and then requiring men to return a separate time-card each day for each section upon which they may be employed. As an example of what is meant by sectionising the job, the brick and stone work of a building may be sectionised horizontally into floors, keeping all the time worked by bricklayers or masons on the foundations, the ground floor, first floor, and each subsequent floor respectively allocated to those floors.

This is a natural division since the cost of getting up material and the number of bricks laid or amount of stone fixed by each man per day will vary as the height of the building varies and the thickness of the walls diminishes. The design also of the building and the number of voids in the façade change, if at all, floor by floor. Provided, therefore, the job is well managed and rises equally all round, as it should, there is no serious difficulty in drawing the line at each floor and testing the cost per rod, per yard, or per foot floor by floor.

Similarly, in regard to joiner's work, certain similar kinds of work can be grouped into sections, such as four-panel doors, six-panel doors, window frames, window sashes, skirtings, etc., each sectioning being treated as a separate unit for this purpose.

When the time-cards come in they can be shuffled, first with the men's names as the basis of arrangement, so as to bring all the cards appertaining to each man together for the purpose of making out the pay sheet; secondly, with the job name, and the sectional names belonging to the job, as the basis for the purpose of cost recording. The cards can be finally filed in their index box under this latter arrangement to form a permanent record.

If the foreman was provided with a scheme indicating the sections, and was instructed to issue each day a time-card to each man working on each section, it would help to secure the proper carrying out of the system. The cards should be returned on leaving off to the foreman, looked over by him to see that the record was properly made out, and O.K.'d accordingly.

Considering now the application of the information furnished by this method of time recording to the particulars furnished by the quantities of, say, the brickwork section of a job, wherein will be set out rods or yards of brickwork in foundations and in various thicknesses, followed by a list of various extra labours, we may not have found it practicable to record the cost of the extra labours separately, even if they were originally priced separately, as they should be, but by deducting the total value of the estimated cost of the extra labours from the total cost we can, for the occasion, cancel out the extra labours, reserving to a suitable opportunity the work of specially testing their general accuracy; then, taking the foundation quantities, our record will test the cost against the estimate, averaging the record of cost for the other floors will test the rest, and, provided we make a note of the proportion of voids and how many floors are involved, the result will compare with other buildings having a like number of floors and voids with sufficient accuracy for the practical man.

In the case of joiner's work the unit cost prices are usually based upon a cubic-foot rate for sawn timber plus super.-foot rates for the various machine dressings and finishing labours and for assembling and fixing. Suitable special tests made with the various machines should serve to establish standard rates for pricing, and from these an estimate of the time which should be sufficient for any other work can be worked out and given to the shop-foreman to work to; this greatly assists him by setting a mark of attainment, and saves excessive sectionising of jobs for cost recording, so that it would probably be only necessary to have sectional records for sawing, if timber is cut up from balk, cutting and surfacing and moulding of surfaces could be grouped as machining, assembling would form a section and fixing another.

Emphasis should be laid upon the immense value of estimating beforehand the time required for various sections, and furnishing the foremen with these data to work to—which they will do, usually, quite willingly if a bonus on their wages depends upon the results.

Reference has already been made to the help which can be had from a time-clerk on large jobs—the writer had occasion to organise the costing arrangements in connection with the painting and decorating of a very large public building. This kind of work is rather difficult to keep track of, where some seventy men are employed in various parts of a rambling building, and as the job had been taken at too low a price it was of the first importance that no waste of time should occur.

The time-sheets were relied on for a general total cost only; the time-clerk on the job was furnished with a set of quantities, and a proportion of time was allocated to each section or each important item. The clerk's business was to test the general accuracy of the quantities as the work progressed, to keep a record of the time on the various sections, and, by frequent measuring up of the work done, and pricing out on the basis of the time allowance, to see that the latter was not exceeded, and, if it were, to acquaint the foreman at once. It was very noticeable how, when a large section was started, it would be found that the time-rate came out too high, and how gradually it was brought down to the proper thing; for example, there were some thousands of yards of grained dadoes on the walls, and at first the time-rate for graining worked out about 6d. per yard, but was shortly brought down to 2¼d. to 3d. per yard. There is not the slightest doubt that but for the system adopted the job would have shown a loss of probably ten per cent., whereas a modest profit was made.

It is very helpful, in pricing painting work, to have accumulated data from experimental tests showing how much a yard to allow for labour for each time over the work, according to the process, preparatory or coating, in question for each kind of brush or tool used; the rates will be found fairly constant, and with those data available it is easy to build up the prices of any kind of painter's work and then work out a time allowance for the foremen's use. Similarly, calculations can be worked out per coat for materials so that by means of an estimated cost prepared beforehand a check can be kept on the working cost and the employer can judge whether materials are being wastefully used.

(To be continued.)

SAWDUST FOR FIRE EXTINCTION.

EXPERIMENTS conducted at a varnish manufactory in Connecticut show that sawdust is of considerable value in extinguishing the fires frequently arising in the varnish industry. The low price of the material and the simplicity of its employment gives considerable interest to the idea. At first sight it would appear that a material of combustible nature like sawdust is not at all suitable for fire-extinguishing purposes, but the experiments to which we refer are sufficiently convincing as to its efficacy. Seventeen experiments were made, some of the results being given below:—

No. 1.—In a steel vessel containing ignited varnish to a depth of 2 in. the fire was extinguished in twenty-five seconds with two and a half shovelfuls of sawdust.

No. 4.—In a steel vessel containing varnish to a depth of 4 in. the fire was put out in ten seconds with a quarter of a shovelful of sawdust mixed with sodium bicarbonate.

No. 9.—On a pine tray, 5 ft. square, with sides 1 ft. 8 in. high, containing nearly three gallons of varnish, the fire was extinguished in fifty-three seconds with three shovelfuls of soft-wood sawdust.

No. 13.—In a steel vessel containing petrol to the depth of 3¾ in. the fire was quenched in thirteen seconds with two shovelfuls of hard-wood sawdust.

No. 6.—In a steel vessel containing varnish, 3 in. deep, the fire required nine shovelfuls of sand for extinction.

No. 16.—In a steel vessel containing petrol to a depth of 2¾ in. the fire was not affected by four shovelfuls of sand, and was afterwards put out in fifty-six seconds by eight shovelfuls of sawdust.

The efficiacy of sawdust is attributable to the fact that the material floats on the ignited surface and protects it from the air, whereas sand sinks to the bottom, and is thereby rendered inoperative. This application of sawdust deserves attention by those of our readers who have occasion to make use of petrol and other hydrocarbons for lighting and power purposes.

WAGES IN THE BUILDING TRADE.

ASHTON-UNDER-LYNE.—The carpenters and joiners have sent in a demand for an increase of 1d. per hour (9½d. to 10½d.) and a reduction in the working hours.

BARROW-IN-FURNESS.—The carpenters and joiners are demanding alterations to rules *re* working hours, starting places, and pay-time from February 1, 1914.

BOLTON.—The painters and slaters have sent in demands for advances of 1d. per hour (9d. to 10d.). The employers have sent in a counter notice in each case, offering 9½d. and alterations to rules. The employers have granted an advance of ½d. per hour (9½d. to 10d.) to the plumbers as from January 1, 1914, with some slight alterations to rules.

CHESTER.—The plasterers are asking for an advance of 1½d. per hour (9d. to 10½d.) as

from May 1, 1914. The painters are demanding a further increase from 8¾d. to 9½d. and 10d. per hour from February 1, 1914. The employers have sent in a counter notice to reduce the scale of pay to the old rate of 7½d. per hour.

COLNE AND NELSON.—The plasterers have sent in a demand to the employers for an increase of 2d. per hour (8½d. to 10½.) and alterations to working rules.

GLOSSOP.—The employers in this district have received a demand from the masons for an advance of 1d. per hour (9½d. to 10½d.) from May 1, 1914.

HEYWOOD.—The bricklayers in this district have given notice of a demand for an increase in wages of 1d. per hour (10d. to 11d.) as from May 1, 1914.

LEIGH, ATHERTON, AND TYLDESLEY.—The bricklayers have given notice of a demand for an advance of ½d. per hour (10d. to 10½d.) as from May 1, 1914.

LIVERPOOL.—The plasterers and slaters have sent in notices for advances of 2d. per hour (10d. to 1s.) and alterations to working rules.

LONDON.—In consequence of strikes which have occurred from time to time against the employment of non-union labour the London Master Builders' Association has had posted in the works and jobs of its members the following notice, so that the rank and file of the workmen may be under no misapprehension as to the obligations imposed upon them by the rules to which their executives have given assent on their behalf:—"London Master Builders' Association.—Important.—The attention of all trades is directed to Rule 1 and the Conciliation Rule in the signed agreements. Rule 1 provides that no exception shall be taken to the employment of any man on the ground that he is or is not a member of a trade society. The Conciliation Rule provides that in case of all disputes, before any stoppage of work takes place, the question causing the dispute must be referred to a Conciliation Board. Since the rules were signed several strikes have taken place before the subject of the dispute had been referred to the Conciliation Board. In one of the earliest of these the question as to whether such action was a violation of the rules was referred to an official arbitrator appointed by the Board of Trade. His decision was as follows:—The action of the members ceasing work without the matter in dispute having been referred to the Conciliation Board was a contravention of the working rules. Notwithstanding this emphatic declaration, several strikes of a similar nature have taken place since, and the London Master Builders' Association desires to point out that if the continued existence of rules mutually agreed upon is considered desirable from the workmen's point of view it is essential that they be honourably observed in the future.—By order, S. B. DEPREE, Secretary."

RADCLIFFE.—The painters have sent in a demand for an advance of 1d. per hour (8¼d. to 9¼d.).

ROCHDALE.—The plasterers and bricklayers are demanding an advance of 1d. per hour and alterations to rules from May 1, 1914. The present rate for plasterers is 9d. and for bricklayers 10d.

SOUTHPORT.—The bricklayers in this district have served the employer with a demand for an advance in wages of 1½d. per hour (9d. to 10½d.) and alterations to rules.

WREXHAM.—The carpenters and joiners have sent in a demand for an increase in wages of 1d. per hour (7½d. to 9d.) as from May 1, 1914. The Navvies, Builders' Labourers, and General Labourers' Union is asking for recognition and a code of working rules.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ABERDEEN.—Plans passed:—Alterations of Royal Infirmary administrative block, Woolmanhill, per Messrs. Smith & Kelly, architects; alterations at Westburn House, Westburn Park, for the T.C., per the Burgh Surveyor; alterations of Nos. 13 and 14, Dee-street, for Messrs. Lumsden & Davidson, advocates, per Messrs. Kelly & Nicol, architects; alterations in connection with Morningside House, Morningside-road, for Mrs. Greig, per Messrs. Jenkins & Marr, architects; alterations and additions to garage at the rear of No. 8, Albyn-place, for Dr. J. Ellis Milne, per Mr. George J. Milne, architect.

Alford.—The plans for the alterations and extension of the miniature rifle range at the drill-hall are before the U.D.C.

Alnwick.—Plans from Mr. C. Walker, architect, for extensions to the convent in Bailiffgate have been passed.

Amersham.—Plans passed by R.D.C.:—Additions to Little Nalders, Ashley Green, Mr. H. Welch; two cottages, Winchmore-hill, Mr. A. W. Nash; house, Oakways, Chesham Bois, Mr. H. Kennard; five shops and residences over, Sycamore-road, Amersham, Mr. H. Kennard; four cottages, Hare-lane, Little Missenden, Mr. A. W. Nash; house, Grimsdell-lane, Amersham, Mr. H. Kennard; house, Finch-lane, Amersham, Mr. C. Fry; house, Hare-lane Estate, Little Missenden, Mr. H. Kennard; two cottages, The Rensels Farm, Amersham, Mr. Day; house, Ridgeway, Chalfont St. Peter, Messrs. Fair & Myer; house, North-park, Chalfont St. Peter, Mr. H. Brown; house, Beechwoods, North-park, Chalfont St. Peter, Mr. H. Brown; two cottages, Grimsdells-lane, Amersham, Messrs. Bulley & Howard; house, Helmsdale, North-park, Chalfont St. Peter, Mr. H. Brown; house, White Lion-road, Amersham, Mr. A. Woodley; three cottages, New-road, Amersham Common, Mr. J. Coker; two cottages, Orchard-grove, Chalfont St. Peter, Mr. D. Ryder; cottage, Horn-hill, Chalfont St. Peter, Mr. D. Ryder.

Andover.—Two houses in Vigo-road for Mr. F. Sainsbury.

Banbury.—Plans passed for rebuilding a bake-house and alterations at No. 42, Market-place, for Mr. James Blencowe.

Barrow.—Plans passed by T.C.:—Ten houses in New-street for Messrs. Banks & Co.; one pair of dwelling-houses in Park-drive for Mr. F. Brown; twenty dwelling-houses in Carlton-avenue, two in Park-drive, and six in West-avenue for Mr. J. J. Mullinder; two dwelling-houses in Park-avenue, corner of West-avenue, for Mr. J. J. Mullinder; bungalow in Red Ley-lane, North End, Walney, for Mr. A. C. Smith; shop adjoining Oxford-chambers, Abbey-road, for Mr. E. C. Winder; twenty dwelling-houses in Carlton-avenue for Messrs. Saddler & Hudson; eight dwelling-houses and one shop and dwelling in Roose-road for Mr. R. Richardson; coliseum and shops at corner of Abbey-road and Rawlinson-street for Mr. Calvert Routledge.

Bath.—The T.C. have agreed to acquire the Grand Pump Room Hotel, and lease it to promoters of a company upon security being given for expenditure, amounting to £25,000, for renovations and furnishing.

Bentley.—A committee is recommending the U.D.C. to purchase 3 acres of land adjoining the cemetery for the purposes of extension. No decision has been arrived at with respect to the erection of a chapel and caretaker's house, but it is understood that this will eventually form part of the scheme. It is hoped to proceed with the erection of new Wesleyan Sunday-schools in the spring.

Bognor.—The L.G.B. have given their consent to the borrowing by the U.D.C. of £10,819 for the purpose of the joint Bognor and Felpham sewage scheme.

Bolton.—Plans passed:—Dr. G. Mowat, motor-house, Waverley-road; Mr. P. W. Emery, houses in Florence-avenue, Astley Bridge; Mr. J. Haslam, store in Romer-street, Tonge; Mr. F. Draper, seven houses in Bury-road, Breightmet; Messrs. H. Harper & Son, church and class-room in St. Helens-road, Hulton; Mr. H. Leach, dwelling-house in Junction-road; Mr. H. Haywood, thirteen pairs of houses off Whitecroft-road, Heaton; Messrs. Morris Bros., petrol store at 48, Folds-road; Messrs. Dunning & Morris, storage shed in Crook-street; Mr. Wm. Dore, for storeroom at 340, Willows-lane; Mr. Bromilow, two washhouses to Nos. 40 and 42, Castle-street; Dr. Waterston, addition to surgery in Halliwell-road; Messrs. Jackson & Bros., Ltd., for cotton shed at Wharf Foundry; Messrs. J. H. Marsden & Co., Ltd., proposed sheds at Britannia Foundry, Folds-road; Messrs. Crook & Co., Ltd., for motor shed at Eagle Mill, John-street; Messrs. Grimshaw & Peers, for addition to works in High-street; Messrs. Shaw, Sternie, & Co., for alteration to premises in Deansgae; Mr. A. Leoptre, for extension to premises in Caroline-street; Mr. Joseph Higson, seven houses in Fern-street; Mr. Edgar J. Scaife, alterations to vicarage at St. George the Martyr's, in Willows-lane; Mr. James Bramhall, for twenty houses in Lingholme-avenue; Messrs. Johnson, Hodgkinson, & Pearson, Ltd., smithy and joiners' shop in Dean-street; Messrs. Knowles, Ltd., extension of mill, Mossfield Mill, Vernon-street; Messrs. Whitehead & Sons, Ltd., alteration to back premises in Crown-street; Mr. F. S. Hampson, for picture palace in Mount-street; Messrs. J. W. Marshall & Co., for bridge at Springfield Paper Mills.

Bourne.—A L.G.B. inquiry has been held into the application of the U.D.C. to borrow £940 for the erection of six houses.

Bournemouth.—Plans passed by T.C.:—Additions, Riverside, Wick, Lieut Guard; additions, Castle Sanitary Laundry, Castle-road, Mr. R. Bevington; additions, Greta, Queen's Park West-drive, Mr. R. Thorn-Waite; additions, Barton Close, Clifton-road, Mr. J. Standring; covered yard, Kingsdene, St. Anthony-road, Mr. J. Eade; motor-house and stable, corner Talbot and East avenues, Mr. G. E. Lambert; conservatory, corner Wilfred-road and Chessil-avenue, Mr. G. B. Wells; additions, Towercliffe, Cliffe Cottage-road, Mr. F. Wareham; house, plot 184, Overcliff-drive, Messrs. George & Harding; additions, Riversdea, Belle Vue-road, Mr. D. Shave; house, plot 58, Montagu-road, Messrs. Burridge & Rovil; house, Somerley-road, Mr. A. Best; additions, Broadmoor, Beechy-road, Mr. G. Larkins; house, plot 125, Gresham-road, Mr. C. H. Jenson; house, plot 406, Methuen-road, Mr. A. J. Hoare; additions to conservatory, Formosa, Lansdowne-road, Messrs. H. Ellison & Son; cart shed, 6, Pine-road, Mr. C. Hooper; five houses, Ripon-road, Mr. F. Baker; additions, 46, Methuen-road, Mr. J. Luther; house, plot 401, Methuen-road, Mr. C. D. Newton; house, Truscott-avenue, Mr. A. King; two houses, plots 46 and 47, Hill Brow-road, Mr. F. W. Pitman; additions, Winton Social Club, Withermoor-road; house, Dunbar-road, Messrs. Jones & Seward.

Braintree.—Six cottages are to be erected at High Garrett by the B.R.C., and six at Black Notley, the former to be let at 4s. and the latter at 3s. a week each. Plans for the erection of two villas for Mr. A. Wicks and two pairs of villas for Mr. H. Smith, in the Granville-road, and for the new slipper baths, for which Mr. George Courtauld, J.P., gave £500 recently, have been approved by the U.D.C.

Brandon.—Plans are before the U.D.C. by Messrs. Bowmer & Heward for a new street and thirteen houses at Langley Moor.

Brighton.—The General Purposes Committee of the Corporation have issued a scheme for the proposed utilisation of the Aquarium site. The scheme involves not only the building of a concert hall, but the widening of the Marine-parade and the extension of Madeira-road-terrace westward from its present point to link up with the Aquarium. It is proposed that the concert hall shall be erected on the eastern half of the Aquarium site, that a portion of the site be retained as an aquarian and biological museum, and that provision be made for baths, etc.

Broadstairs.—Plans passed by U.D.C.:—Garage, West Cliff Cottage, for Mr. F. M. Hormsby; garage and cottage at Dumpton Park-drive for Mr. F. Strevens; addition to East Kent Laundry. The following plans are under consideration:—Proposed house at North Foreland-avenue for Miss Wightwick; two houses on the Eastern Esplanade for Mr. C. Philpott; new streets adjoining Lindenthorpe-road, Lloyds' Estate, for Mr. C. E. Doughty.

Buckingham.—The R.D.C. have passed plans for a house for Mr. Heritage, Marsh Gibbon, and a cowshed at Leckhampstead for Mr. Baker.

Cambourne.—Mr. Carkek and Mr. Duke, whose tenders were respectively £22,429 and £23,237 for carrying out the sewage scheme of the U.D.C., having refused to have the contract divided, the Council has decided to ask for fresh tenders.

Chelmsford.—The Essex Standing Joint Committee have decided to ask for tenders to erect new offices from plans prepared by the County Architect, which have been submitted to Sir Aston Webb.

Cheshunt.—The U.D.C have passed a plan for the erection of a stable and cartshed at Beaumont Farm for Dr. S. Fraser.

Cinderford.—The Board of Agriculture has offered sites in seven different localities in the Forest, at rates averaging up to £60 per acre, for building. The Office of Works would give the land required for road-making, but reserved the minerals.

City of London.—The offices of Christ's Hospital, in Aldersgate-street, will be transferred to a new building to be erected at the corner of Great Tower-street and Water-lane, from designs by Sir Arthur Blomfield & Sons.

Coalville.—Tuberculous dispensary for Leicestershire C.C.

Criccieth.—The L.G.B. has held an inquiry into an application by the U.D.C. for sanction to borrow £3,100 for purpose of building sixteen workmen's houses in blocks of four on a site in Brynkirfield.

Dewsbury.—Plans passed:—Trustees of the late J. L. Haigh, alterations to No. 12, Trafalgar-terrace; Mr. Joseph Crossley, two houses, Bywell-road, off Wakefield-road; Messrs. Seth Senior & Sons, alteration of sanitary arrangements, etc., Commercial Inn, Batley Carr; Dr. R. Petticrew, garage, Thornhill Combs; Mr. George Brooke, three houses, Thornhill Edge; Mr. William Tasker, house, Lees Hall-road; Savile Estate, new road off Bennett-lane; Messrs. M. Oldroyd & Sons, Ltd., alterations to press-room, Calder Mills; Messrs. Abraham Marsden & Son, alterations to engine and boiler houses, Chickenley Heath; Mr. Fred Hirst, new stable, Dewsbury Gate-road.

Doncaster.—Picture palace in St. Sepulchres Gate for Mr. T. W. Millard and others.

Dublin.—The Corporation has authorised an agreement with Messrs. M'Donnell & Read, architects, in reference to the preparation of working drawings, specifications, etc., of the proposed new municipal buildings.

Durham.—The T.C. have passed the following plans:—Durham Miners' Association, for new hall and agents' houses at Red Hills; Durham University, for entrance lodge at Smiddy-haughs; and Cr. Goodyear, for motor-house at the Gables. The R.D.C. have passed a plan for a house at Elemore Colliery by the Lambton and Hetton Collieries, Ltd.

Easington.—The R.D.C. have passed plans for six houses at Easington Colliery for Mr. G. Sinclair; street plan at Blackhall Colliery for the Horden Collieries, Ltd.; seventeen houses at Shotton Colliery for the Horden Collieries, Ltd.; six houses, Sunderland-road, New Seaham, for Mr. R. Curry, and street and sewer plan, Sunderland-road, New Seaham.

Earlestown.—The U.D.C. has adopted designs by the Surveyor for thirty cottages, and he has been instructed to prepare plans and estimates.

Eastbourne.—A new cinema is proposed in the Langney-road.

East Hetton.—There are great probabilities of a good number of aged miners' homes being erected in the district around East Hetton or Kelloe Colliery within a short time, a number of building sites having been promised or given. The East Hetton Colliery have promised to give ground for sites for six homes. Mr J. Oddy, of Cassop, has given six sites in Cassop village,

* See also our list of Competitions, Contracts, etc., on page 655.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

——	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Newcastle	10	10	10	10	9½	10	9	6½	6½	6½
Sunderland	9½	10	9½	9½	9½	9	9	6½	6½	6½
Darlington	9	9½	9	9½	9½	9	7½	6½	6½	6½
Stockton-on-Tees	9	10	9½	10	9½	9	8½	7	7	7½
Bradford	9½	9½	9	9	9½	9	8½	6½	6½	6½
Halifax	9½	9	8½	8½	8½	9	8½	6½	6½	6½
Hull	9½	9½	9½	9½	9½	9½	8½	7	7	7
Leeds	10	10	9½	9½	9	9½	8	7	7	7
Sheffield	10	9½	9½	9½	9½	9½	8	6½	6½	6½
York	9	9½	8½	9½	9½	8½	7½	6½	6½	6½
London	11½	11½	11½	11½	—	1s.	9	7½	7½	7½
Brighton	8-9	8	8	—	—	—	—	—	—	—
Portsmouth	9	9	9	9	—	8	7½	6½	6½	6½
Southampton	8½	9½	9½	8	—	9½	8½	6½	6½	6½
Maidstone	9	9	9	—	—	9	7½	5½	5½	5½
Bristol	9½	9½	9½	9½	—	9½	9	6½	6½	6½
Plymouth	9	9	9	9	—	9	7½	6	6	6
Bath	7½	7½	8	8	7½	7½	7	5-5½	5-5½	5-5½
Cheltenham	8½	8½	8½	8½	—	8½	7½	5½	5½	5½
Exeter	8	8	7½	7½	7½	7½	6½	5	5	5
Gloucester	7½	8½	8½	7½	7½	8½	7½	5½	5½	5½
Hereford	7½	8	7½	8	7½	7	6½	5	5	5
Stroud	7	7	7	7	7	7	6½	4½	4½	4½
Blackburn	10	10	9½	9	9½	9½	9½	6½	7	7
Bolton	10	10½	10	10½	10	10	9½	—	—	—
Liverpool	11	11	11	10	10	10	9½	6½	6½	6½
Manchester	10	10½	10½	10½	9	10	9½	6½	6½	7½
Oldham	10	10½	10	9½	9	10	9½	6	7	7½
Preston	9½	10	9½	9	8½	9	8½	5½	6	6
Birmingham	10	10	10	10½	9	10½	9	7	6	7
Derby	9½	9½	9	9	9	9	8	6	7	6½
Leicester	9½	9½	9½	10½	9	9½	8	6	7	7½
Nottingham	10	9½	9½	10	9	9½	9	7	7	7½
Norwich	8	8	8	8	8	8	6½	5	5	5
Cambridge	9	8½	8½	9	8	9	7	5½	5½	5½
Oxford	9	8	8½	8½	8	8½	7	6	6	6
Southend	9	9	9	9	Piecework	9	7½	6	6	6
St. Albans	9	9	9	10	8½	9	8	6	6	6
Grays	—	10	10	—	—	—	8½	6	6	6
Cardiff	9½	9½	9½	9½	9½	9½	8½	6½	6½	6½
Swansea	9	9	9	9	8½	9	8½	6	6	6
Newport	9	9	9	9	8½	8½	8½	6	6	6
Chatham	8	9	8½	9	9	8½	7	5½	5½	5½
Birkenhead	11	11	11	10½	10	9½	9½	6½	6½	6½

The mason's rate given is for bankers; fixers usually ½d. per hour extra.

and there is also an offer of sites in Quarrington Hill village, while Ald. Foster is in communication with Messrs. Bell Bros., Ltd., owners of Bowburn and Tursdale Collieries, regarding some sites near Quarrington Hill. An early start is to be made to erect six of the homes, and the others will follow in due course.

Edinburgh.—The Streets and Buildings Committee are recommending the T.C. to take the necessary steps for preparing a town-planning scheme for the Murrayfield district of the city. Plans passed by Dean of Guild Court:—Edinburgh School of Cookery, alterations, 1 and 2, Atholl-crescent; North British Railway Company, alterations at St. Margaret's Works; Edinburgh School Board, bakery classroom, West Fountainbridge School; General Billposting Company, Ltd., advertising hoarding, Slateford-road Bridge; Mr. John H. Herdman, reconstruct hothouses at Kinellan, Murrayfield; and the Rev. Canon Stuart, deviation, St. John's, York-lane.

Evesham.—Plans passed by T.C.:—Two dwelling-houses in Northwick-road for Mr. H. Daniels; three dwelling-houses in Northwick-road for Mrs. Price; house in Northwick-road for Mrs. W. Bedenham; cottage in Church-street for Miss E. M. Burlingham.

Feckenham.—The R.D.C. have appointed a building committee to consider the question of building cottages.

Fleet.—Additions for motor garage at Wychwood for Mrs. Porter.

Foleshill.—Plans passed by R.D.C.:—Cottage, Keresley, for Mr. W. Hillman; office, Coventry-road, Bedworth, for Mr. M. Horobin; additions to house for Mr. J. G. Gray at Keresley.

Friston.—The Norwich Consistory Court has granted a faculty for the erection of a wooden reredos and the decoration of the walls of the chancel of Friston Church.

Gosport.—The E.C. are to be asked to proceed with the erection of the boys' department at Grove-road School, and there make provision for a handicraft centre. It is also proposed to erect a handicraft centre at Leesland School.

Harrogate.—A sum of over £1,700 has been promised towards the erection of the tower of St. Peter's Church.

Hartley Wintney.—The R.D.C. have decided to ask Mr. Schultz, architect, of Hartley Wintney, if he will undertake the design of cottages for the site offered by Sir H. Mildmay at North Warnborough.

Hazel Grove.—Plans passed by U.D.C.:—Motor-house for Mr. Mason, Bramhall-lane; additions to house for Mr. Grundy; house for Mrs. Hazeldine, Bramhall; alterations to shops, London-road, for Mr. Hancock, and additions to the Rising Sun, Hazel-grove, for Messrs. Walker & Homphrey, Ltd.

Hereford.—The T.C. have decided that a portion of the Eign Mill site and the whole of the Crozens site be offered to builders or others on condition that they erect cottages thereon, and that half of the cottages to be erected be let at a rent not exceeding 5s. per week each, inclusive of rates; the land either to be leased to the builders or others or sold outright, and subject to an annual rent charge at the rate of £1 per four cottages.

Holbeck.—Plans for twelve cottages in the Hurn Ward have been approved by the Housing Committee of the U.D.C., and will be forwarded to the L.G.B. for approval, and for sanction to borrow £2,450.

Houghton-le-Spring.—Alterations to Havelock Arms, Newbottle, for Messrs. R. Fenwick & Co., Ltd

Hull.—A new picture palace, to be known as the Tower Picture House, is to be built on land owned by the North-Eastern Railway, opposite the Kinema Picture Palace, and adjoining the School of Art.

Hursley.—The R.D.C. have applied to the L.G.B. for permission to raise a £10,000 loan for the drainage of Chandler's Ford.

Irthlingborough.—Plans passed by U.D.C. for four houses off the Finedon-road for the Motor 'Bus Company and Mr. A. Baynes.

Irvine.—A building scheme is to be considered by the T.C.

Kingstown.—The U.D.C. has adopted the Surveyor's block plan for a proposed new housing scheme in Callaghan's-lane, to cost £4,350, and to provide for twenty-three three-roomed houses.

Lampeter.—The L.G.B. have held an inquiry relative to the application of the T.C. to borrow £3,365 for the purposes of water supply, including the construction of a reservoir.

Lincoln.—Plans passed by T.C.:—Mr. W. F. Berry, two houses, Kingsway; Messrs. Clayton & Shuttleworth, paint-mixing shop, Stamp-end; Messrs. Penny & Co., chimney-shaft, St. Rumbold-street; the Public Benefit Boot Company, alterations and additions to shop, High-street and St. Benedict-square; Lincoln Co-operative Society, corn warehouse and additions to mill, Waterside North; Mr. R. L. Holland, new street, Whitehall-grove, off West-parade.

London County Council.—The Building Act Committee have agreed to the following:—Addition and conservatory at 115, Cambridge-gardens, on the application of Mr. G. H. Southcott; erection of one-story shop at 121, Stanstead-road, Forest Hill, on the application of Messrs. Blexall Bros.; erection of projecting columns and cornice at 50, Berners-street, on the application of Mr. J. Slatery, for the Carron Company; five houses with projecting porches on the north side of Deepdene-road, Denmark Hill, on the application of Mr. E. B. Ellis, for Mr. F. W. Gardner; bay windows, etc., to two houses on south side of Streatham Common, on the application of Mr. H. M. Norris; the erection of buildings in Oxley-street, Bermondsey, on the application of Mr. J. W. Start for Mr. C. W. Parker; additions to premises of Messrs. T. E. Carwardine & Co., Kingsland-road, Shoreditch, on the application of Mr. J. Farrer; erection of projections, etc., to eight proposed houses in new road leading from Acre-lane, Brixton, on the application of Messrs. E. Evans & Sons, for Messrs. Leeks & Blake; erection of Jewish Mission House, Cambridge-road, Bethnal Green, on the application of Mr. J. C. T. Murray, for the Jewish Mission Committee; addition cubical extent in relation to an extension of block 1 of Messrs. Harvey Nichols & Co.'s premises, Knightsbridge, on the application of Mr. F. E. Williams; additional cubical extent in respect of an addition to the Imperial Biscuit Works, Townmead-road, Fulham, on the application of Messrs. J. M. Monro & Sons; to the laying-out of a street for carriage traffic to lead from Providence-place to Sterne-street, Hammersmith, on the application of Messrs. T. H. Kingerlee & Son; the laying-out of a street for carriage traffic leading from Croft-down-road to Chester-road, St. Pancras, on the application of Mr. W. Burdett Coutts, M.P. The Education Committee propose building a school for physically defective children at Beresford-street, Newington. The Theatres Committee have granted a further six months for the erection of a cinematograph hall at 98, Commercial-road, Stepney, the plans of which, submitted by Messrs. Adams & Coles, were approved on April 15. The Housing Committee are asking the Finance Committee to approve of a capital estimate of £86,020 for the erection of 353 cottages and two shops on the Oak-lane Estate, Hammersmith. The cottages will comprise twenty-six of five rooms, twenty-four of four rooms and small additional bedroom, 112 of four rooms, sixty-nine of three rooms and small additional bedroom, and 122 of three rooms. All the cottages will also have sculleries, and 244 will be provided with bathrooms.

Loughborough.—Plans passed by the T.C.:—Extensions to drill-hall; nine houses, Albert-promenade, for Messrs. Moss & Taylor; extensions to electricity station.

Ludlow.—House at Bitterley for Mr. J. C. Mackay.

Lytham.—Plans passed:—Motor-houses for Mr J. A. Walker, Cambridge-road, and for Mr. T. H. Nelson, Park-avenue; detached house, Inner-promenade, Fairhaven, for Mr. J. J Carter; and two houses, Mythop-avenue, for Mr. J. W. Haworth.

Margate.—Plans passed by T.C.:—Additions, Florence Hotel, Lewis-avenue, Mr. T. Wallis; house, Cornwall-gardens, Messrs. Anderson Bros.; two houses, Victoria-avenue, Mr. E. H. Miles; seven houses, Eaton-road, Mr. W. J. Mercer; additions, 48, Madeira-road, Mr. R. A. Harris; additions, bakehouse, Sweyn-road, Messrs. Moody & Chrisfield; additions, Clifton-ville Hydro, Eastern-esplanade, Mr. T. R. Higgins.

Milford Haven.—Three houses in Yorke-street by Mr. G. M. Lewis.

Motherwell.—The Dean of Guild Court has granted linings for the following:—Messrs. William Chambers & Sons, two double cottages in Jerviston-road; Mr. Thomas Scott, cottage in Burnside-street; Mr. William Marshall, double cottage in Shields-road; and Mr. J. Hall Nicol, two houses of five rooms and kitchen each in Douglas-street.

Musselburgh.—The School Board have decided to proceed with the erection of a new grammar school to accommodate 540 pupils, at a cost of about £11,000.

Newcastle-upon-Tyne.—The T.C. have decided to provide new baths for Benwell, Heaton, and Walker, and to apply to the L.G.B. for sanction to borrow £27,000 for the purpose.

North Mools.—The Liverpool Consistory Court are considering an application for permission to take down the present church of St. Stephen-in-the-Banks, North Mools, and build a new and larger church upon the same site. The ornaments and furniture of the present church are to be preserved and placed in the new church.

Nuneaton.—The L.G.B. have approved the application of the R.D.C. to borrow £2,800 for the Arley sewage scheme.

Ongar.—An inquiry by the L.G.B. has been held respecting an application of the R.D.C. for sanction to borrow £3,100 for the purpose of sewerage and sewage disposal for the village.

Orpington.—Plans passed for detached house in Beaumont-road, Crofton, for Mr. W. T. Rogers; and a detached house in Orchard-grove for Mr. A. W. Taylor.

Poole.—Plans passed by T.C.:—Mr. W. G. Crane, for Mr. H. S. Durbin, house, Banks-road; Messrs. Insley & Insley, for Mr. F. J. Albery, extension to house, Marlborough-road; Messrs. Fox & Sons, for Mr. R. C. Mayhoe, house, Spur Hill-avenue; Mr. H. Kendall, for Messrs. Johnson Bros., Ltd., alterations to premises, 126, High-street; Mr. H. L. Bromby, for Messrs. Butler & Son, alterations to shop fronts, High-street and Weston's-lane; Mr. T. E. Grimes, for Mr. R. Colman, house, off Ashley-road; Messrs. Musselwhite & Son, for the Vicar and Churchwardens, extension of St. Osmund's Church, Parkstone; Mr. J. G. Jacobs, for the Vicar and Churchwardens, extension to St. Osmund's Hall, St. Osmund's-road; Messrs. Burt & Vick, for Mr. E. Poulain, additions to Haven Hotel, Sandbanks.

Rawtenstall.—Plans approved by T.C.:—Two houses at Shawclough-road, Waterfoot, for Mr. Harry Clough; boiler-house at Shawclough Works, Waterfoot, for Mr. R. Hilton; shippon at Ashworth Farm, Edgeside, for Mrs. E. A. Harris; additions, bakehouse, Sweyn-road, Messrs. Moody & Chrisfield; additions, Clifton-ville Hydro, Eastern-esplanade, Mr. T. R. Higgins.

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Romford.—Plans passed by U.D.C.:—House in Crossway for Messrs. Adams & Holden; four houses in Hornchurch-road for Mr. H. E. Rushen; bungalow in Essex-road for Mr. A. Walker; and stable in High-street for Mr. J. Crudgington.

St. Helens.—In consequence of the scarcity of houses the T.C. have adopted a recommendation

to provide accommodation for about 300 families of the working class, either on the tenement system or self-contained cottages in rows, at rents not exceeding 6s. per week, including rates, such accommodation to be provided on Corporation land if possible, by builders on open contract, and that the Borough Engineer submit sites for consideration.

Shipley.—Sawmill and office for Messrs. E. Wood & Co., Ltd., at Bolton Woods.

Sleaford.—Alterations to the Kesteven Weights and Measures Offices.

Southport.—The Municipal Buildings Committee have decided to erect new offices, at an estimated cost of £6,000.

Spilsbury.—Plans passed for alterations to the Wainfleet Assembly Rooms, on the application of Messrs. J. & T. Turner, of Wainfleet.

Stafford.—Plans are before the T.C. for a coliseum, to be erected on a site in Gaolgate-street, at a cost of between £15,000 and £20,000. Mr. H. T. Sandy, of Stafford, is the architect.

Stoke-on-Trent.—The B.G. have approved of the extension of the nurses' home at the Workhouse, at a cost of £880.

Sunderland.—Alterations and extensions of Queen's Hotel, Fawcett-street, for Mrs. Liddle.

Tilbury.—The U.D.C. have decided to apply to the L.G.B. for sanction to a loan of £2,000 for making-up Christchurch-road and the northern ends of Toronto and Quebec roads.

Trowbridge.—Alterations to premises in Hill-street for Messrs. Usher's Wiltshire Brewery Company.

Wallasey.—It is proposed to erect a new fire-station, at an estimated cost of £5,500.

Wantage.—The Surveyor of the R.D.C. has prepared an amended specification for the erection of four workmen's dwellings at Harwell, and forwarded it to the L.G.B. Architect.

Warrington.—The Liverpool Consistory Court have granted a faculty to erect in St. Ann's Church an oak reredos, etc., and to place an oak floor in the ambry; to instal a system of lighting by electricity, and to clean and decorate the whole of the interior of the church.

West Bromwich.—The T.C. has decided that application be made to the L.G.B. for sanction to the raising of a loan of £18,450 for the erection of the upper standard boys' and girls' departments of the George Salter Council School, Greets Green, the total cost, with infants' department, being £29,394, or about £18 per head.

West Thurrock.—The P.C. have decided to ask the Orsett R.D.C. to appoint Mr. F. J. Winter, architect, of Southend, as their adviser in the proposed building scheme for workmen's dwellings.

Wickham Market.—A new site has been found for the proposed creamery and milk depôt, and Mr. Cates, of the Eastern Counties Farmers' Association, is preparing plans.

Wishaw.—Plans have been passed of an extension (costing about £1,000) to the aerated water factory in Stewarton-street, belonging to Messrs. A. G. Barr & Co.

Wotton-under-Edge.—The P.C. have approved of the plans, prepared by Mr. A. V. Lawson, architect, of Cirencester, for the cottages, and they will be forwarded to the R.D.C.

York.—Plans passed:—Rev. A. V. Jones, parish-room, Tang Hall-lane; John Smith's Brewery Company, additions, Reindeer Inn, Penley's Grove-street; Messrs. Rowntree & Co., Ltd., cart shed, Wigginton-road; Girls' Industrial School Committee, store sheds, Lowther-street; Mr. C. Walker, building estate, Millfield-lane, Hull-road.

Yovstown.—Plans for a cinema for Mr. G. Dorman have been passed.

Ystradgynlais.—The L.G.B. have held an inquiry into the application of the R.D.C. to borrow £15,647 for the purchase of land and the erection of twenty houses at Colbren and Ystradgynlais and eighteen at Abercrave.

GENERAL BUILDING NEWS.

ST. MARK'S CHURCH, OLD-STREET, E.C.

It has been necessary to undertake the complete restoration of the Church of St. Mark, Old-street, Shoreditch, E.C. Messrs. Lovegrove & Papworth are the architects for the work, and the general contractor is Mr. P. Kerridge, Buckland-street, N. The stone restoration is being carried out by Messrs. Auguste Dreyfus & Co., Featherstone-street, E.C., and Messrs. Wainwright & Waring, Wandsworth, are responsible for the stained glass and casements. The iron railings and fittings are by the Albany Forge, Ltd., Goldhawk-road, Hammersmith.

KEMPLEY CHURCH.

This Norman church has been reopened after various repairs and alterations have been made. The work has been carried out under the supervision of Mr. Temple Moore, architect, and has included drainage, re-roofing and underpinning the thirteenth-century tower, which was considerably weakened.

NEW BUILDINGS, BOND-STREET, W.

The demolition of 70, New Bond-street and 27, Old Bond-street will be begun shortly, and on the sites new buildings will be erected from the designs of Messrs. Homer & Lucas, Oxford-street, W.

HOTEL, NORTH WOOLWICH.

Designed to follow the riverside tradition, the Three Crowns Hotel, North Woolwich, is in course of construction by Messrs. Lovegrove & Papworth, Old-street, E.C. The builders are Messrs. John Greenwood, Ltd., London Bridge, and the concrete-steel raft on which the house is built was designed by Messrs. D. G. Somerville & Co., Ltd., Victoria-street, Westminster. The structural steelwork is by the Aston Construction Company, Hoxton; the lifts and partitions are by Messrs J. E. Lucas & Son, New Cross; the sanitary goods and fireplaces by the Albion Iron Company, Ltd.; the terra-cotta work is by Messrs. Doulton & Co., Ltd., Lambeth; the pavement-work by Art Pavements and Decorations, Ltd., Endell-street, Holborn; Messrs. Buckley & Beach, Chelsea, are responsible for the pewtering.

INSTITUTE OF MARINE ENGINEERS.

This society, hitherto located in Romford-road, Stratford, will move in due course to a new building now in course of erection on Tower-hill, E. The architect for the new structure is Mr. Victor Wilkins, York-buildings, Adelphi, and the general contractors are Messrs. Higgs & Hill, Ltd., South Lambeth-road, S.W. The cost of the building will be about £10,000.

CINEMA THEATRE, DALSTON.

A picture theatre is to be built in Stoke Newington-road, Dalston, from the design of Mr. Stanley H. Burdwood, Licentiate R.I.B.A., York-place, Baker-street, N.W. The contractors are Messrs. F. Pitcher, Ltd., Marylebone-road, N.W.

BUSINESS PREMISES, WARDOUR-STREET, W.

Pathé House, Wardour-street, is approaching completion, and represents a new style in commercial architecture. The distinctive characteristics are the shop front, with large central window space over, and the enclosing frame surmounted by an effective elliptical cornice. The architects are Messrs. Detmar Blow & Fernand Billerey, Grosvenor-road, S.W., and the general contractors are Messrs. Robert Mickel & Co., Great Portland-street, W. The steelwork is by Messrs. Redpath, Brown, & Co., Ltd., East Greenwich, and the Portland stone is from the Barnes Quarries. The windows are by Messrs. James & Co., and the concrete partitions by Messrs. H. W. Cullum & Co., Aldgate. The building is set back for road widening.

CLUB BUILDING AT NEWTON ABBOT.

A new Liberal club is in course of erection at Newton Abbot from the designs of Mr. J. C. Beare, architect. The cost of the work will be about £3,000, and the contractors are Messrs. Zeally & Son.

A NEWCASTLE RESTAURANT.

Mr. A Stockwell, M.S.A., is the architect for a new restaurant which has been erected in Pilgrim-street, Newcastle, for Messrs. Higginbottom. The contractor for the work was Mr. G. Douglas.

BUILDING AT BRISTOL.

A new parish hall has been erected at the rear of the mission house in Portland-square, Bristol, at a cost of about £700. The architects for the work were Messrs. Holbrow & Oaten, and the hall has accommodation for 400 people, while also included in the building is a classroom with 250 sq. ft. of space. The builders are Messrs. R. Wilkins & Sons.

TRADE NEWS.

The architect for the Royal Alexandra Hospital (open-air ward) at Brighton has specified Pudlo to be used with the cement to prevent porosity in same. The domed roof of the new Town Hall at Chadderton, Lancashire, which was formally opened last week, was constructed of Pudloed cement.

Boyle's latest patent "air-pump" ventilators have been applied to the High School for Girls, Wisbech, and to the Broomwood Wesleyan Church, Clapham Common, S.W.

The Infirmary, Perth, is being supplied with Shorland's double-fronted patent Manchester stoves, with descending smoke flues, by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester. The extensions to St. Clement's Schools, Bradford, are being supplied with the firm's warm-air ventilating patent Manchester grates and ventilators.

SANITARY INSPECTORS AT BRISTOL.

The south-western centre of the Sanitary Inspectors' Association held their meetings in Bristol on Saturday last. During the course of the day a visit was paid to Messrs. Wills's tobacco factory in East-street. A members' meeting was held in the Civil Court of the Guildhall under the presidency of Mr. J. Crathorn.

FOREIGN AND COLONIAL.

Glass, Belgium.

The *Börsen Zeitung* (Berlin) of November 27 states that during the last few weeks a certain revival has been experienced in the Belgian glass industry. The sales of window-glass abroad have increased somewhat, particularly in the United Kingdom and North America. Although the export trade has been good lately and the returns for October are satisfactory, nevertheless the export figures for the first ten months of the year show a falling off as compared with the corresponding period of last year.

Cement, Argentina.

The *Nachrichten für Handel* (Berlin) of November 4 states that the consumption of cement in Argentina is rapidly increasing. In 1912 the quantity imported was 375,821 metric tons, valued at 4,134,031 pesos gold (about £827,000), whilst during the first half of 1913 it amounted to 330,471 metric tons, valued at 3,635,181 pesos gold (about £727,000). There are no cement factories in Argentina.

TRADE CATALOGUE.

We have received a booklet from Messrs. Coup, Phillips, & Co., of Clerkenwell-road, E.C., showing buildings in which "Uneeda" bolts and casement stays are used. Casement stays are often responsible for slamming and broken windows, on account of the fact that the adjustment which is necessary before the window is fixed in a secure position whenever it is opened is often overlooked. The "Uneeda" casement stay, being automatic, requires, we are informed, no adjustment, either in opening or closing the window, and it is therefore "foolproof," and the window cannot be either slammed or in any way injured by the wind. Another point is that, owing to the telescopic action, there is no projecting part into the room. These casement stays can also, if preferred, be fixed at the top of the window so as to leave the bottom quite free for cleaning purposes. The method of construction is as follows:—A small expanding piston is attached to the rod running in the tube, which gives the desired friction to hold the casement. The casement stays are made in all sizes to suit every variety of casement.

PATENTS.

APPLICATIONS PUBLISHED.*

25,746 of 1912.—Frederick James Bostel: Opening and closing of manhole doors for drainage and sewerage, applicable also to other pavement doors.

317 of 1913.—James Kinks & Son, Ltd., and Leonard Stanley Hinks: Gaslight fittings such as pendants, suspension-lamps and lanterns, brackets, and such like.

919 of 1913.—Herbert White: Holdfast for roofing slates and the like for use in repairing roofs.

1,375 of 1913.—John Lamin and George Stookdale: Heating-stoves.

4,964 of 1913.—James Forbes Jones and Jones & Campbell, Ltd.: Domestic firegrates.

5,162 of 1913.—Charles Jaffrys Forrester: Ventilators.

6,044 of 1913.—John Frederick Burn, Arthur Claude Burn, and George Coplestone Carter: Manufacture of bricks, blocks, slabs, and other articles and apparatus therefor.

15,233 of 1913.—The Erebus Manufacturing Company, Ltd., and Enoch Raybone: Bolts of latches and locks.

15,390 of 1913.—Alfred Ernest Graham: Chimney and ventilating-shaft tops.

17,062 of 1913.—John Maunders and Thomas Alexander Stewart: Cooking-ranges.

18,986 of 1913.—Otto Arndt: Scaffolding for making and finishing ceilings.

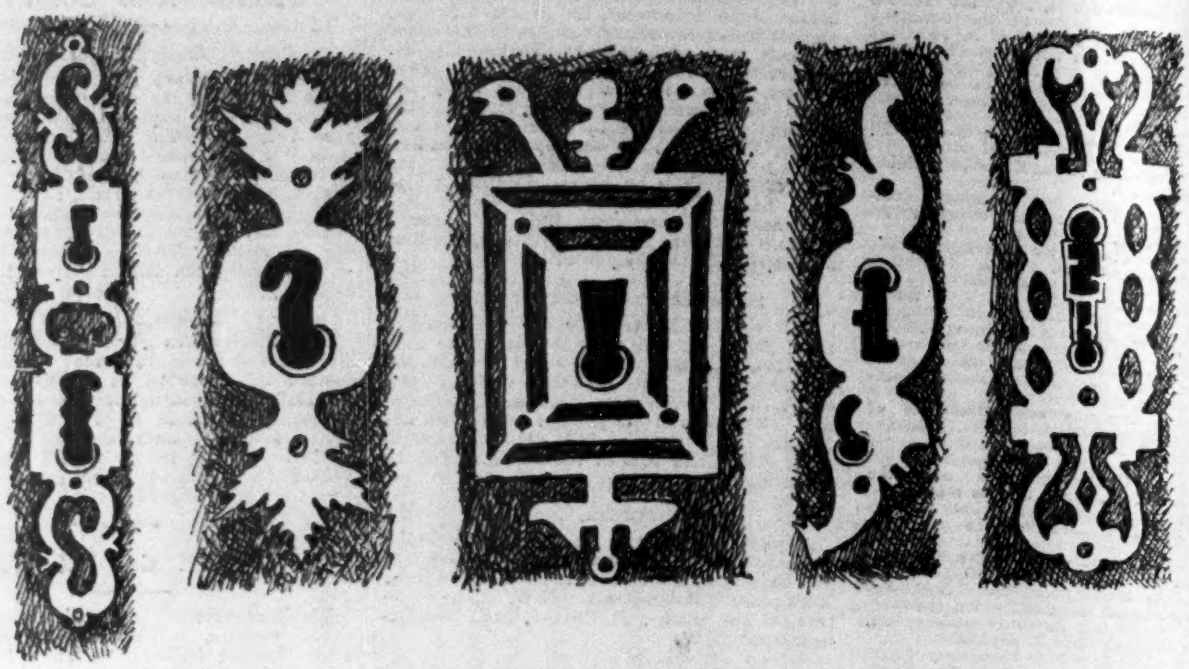
19,299 of 1913.—Frederick Alexander Waring and Cyril Everard Hughes: Louvre or like framework construction.

19,465 of 1913.—Frank Wilford Mellowes: Glazing.

DRAINAGE AND SEWAGE WORKS, KILKENNY.

Mr. James F. Reade, A.M.Inst.C.E., has submitted plans and specification for a scheme for the city main drainage and sewage disposal works at an estimated cost of £22,000. The plans were approved and application to the Local Government Board for sanction for a loan was ordered to be made.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.



Piedmontese Keyhole Escutcheons.

(From "Piedmont," by Estella Canziani & Eleanour Rohde.)

BOOKS.

Piedmont. By ESTELLA CANZIANI and ELEANOUR ROHDE. (London: Chatto & Windus. 21s.)

THIS is an interesting volume, illustrated by fifty colour reproductions of pictures and some line drawings by Estella Canziani, of scenery and peasant figure subjects. Many of the illustrations are excellent, and among them we may mention: I.—A View from the Roof of Milan Cathedral at Dawn; III.—The Ciccia; IX.—Clouds over the Mountains; XVI.—An Old Man of the Alps; Pragelato; XXIII.—Autumn: a beautiful view of trees, with a background of snow mountains; LII.—The Turn of the Leaf. The figure paintings are a little wanting in life, though they form an excellent and careful study of picturesque costumes. The book is well written, and gives an interesting picture of the life, habits, and superstitions of the Italian peasantry. We learn, for instance, that "He who wants his wife to die, he must make her walk in the sun of February. She who wants her husband to die, let her give him leeks in April." And while "On St. Bartholomew's Day it is good to wash one's feet, on St. Matthew's Day it is not even fit to wash one's feet." Another quaint saying, the first line of which, though perhaps a counsel of perfection, would be a little difficult to practice, is: "When your eye smarts rub it with oil with your heel. Three things leave alone—the eyes, a woman, and the faith. You can see better with spectacles than with another's eyes. When your eye smarts it is a good sign."

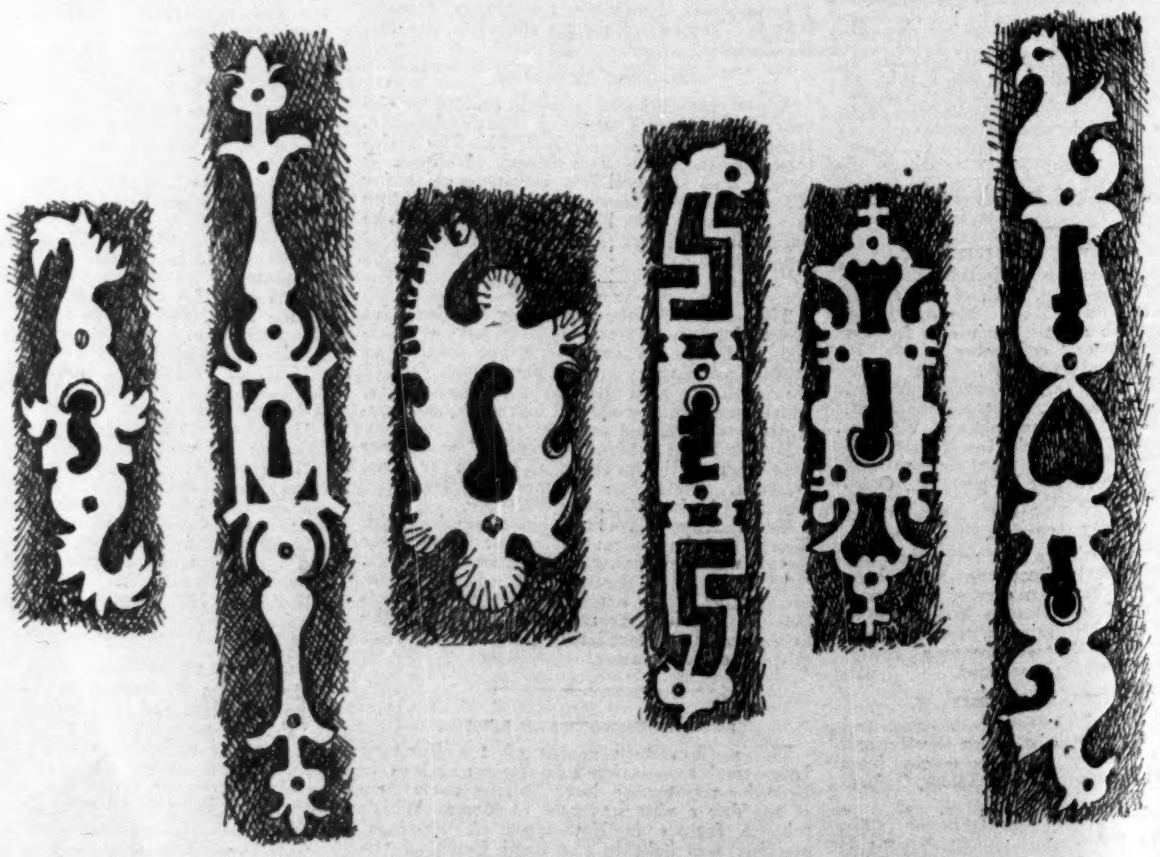
"To harm anyone wicked women go unobserved to the altar and pierce the wick of a candle, at the same time wishing the desired evil; they leave the pins stuck in the candle." "If you remain at the foot of the bed of a dying person his soul cannot pass. The door must be left open to allow of a free passage, and children must not sit in the doorway."

Many of the small line drawings of escutcheons, door latches, knockers, and other details are good and interesting, and the colour drawings of peasant jewellery are quaint and characteristic.

The volume is an interesting record of the world of quaint fancies and superstition which is daily becoming more and more a thing of the past, and the volume is magnificently produced by the publishers.

Second Report of the Committee on Reinforced Concrete: The Institution of Civil Engineers. (London: William Clowes & Sons, Ltd. 1913. Pp. 187. Price 2s. 6d. net; by post 2s. 10d.)

SINCE the issue of the Preliminary and Interim Report of the Inst.C.E. Committee on Reinforced Concrete, dated June, 1910, efforts have been made to obtain experimental data, with the object of throwing further light on points concerning which existing information appeared imperfect.



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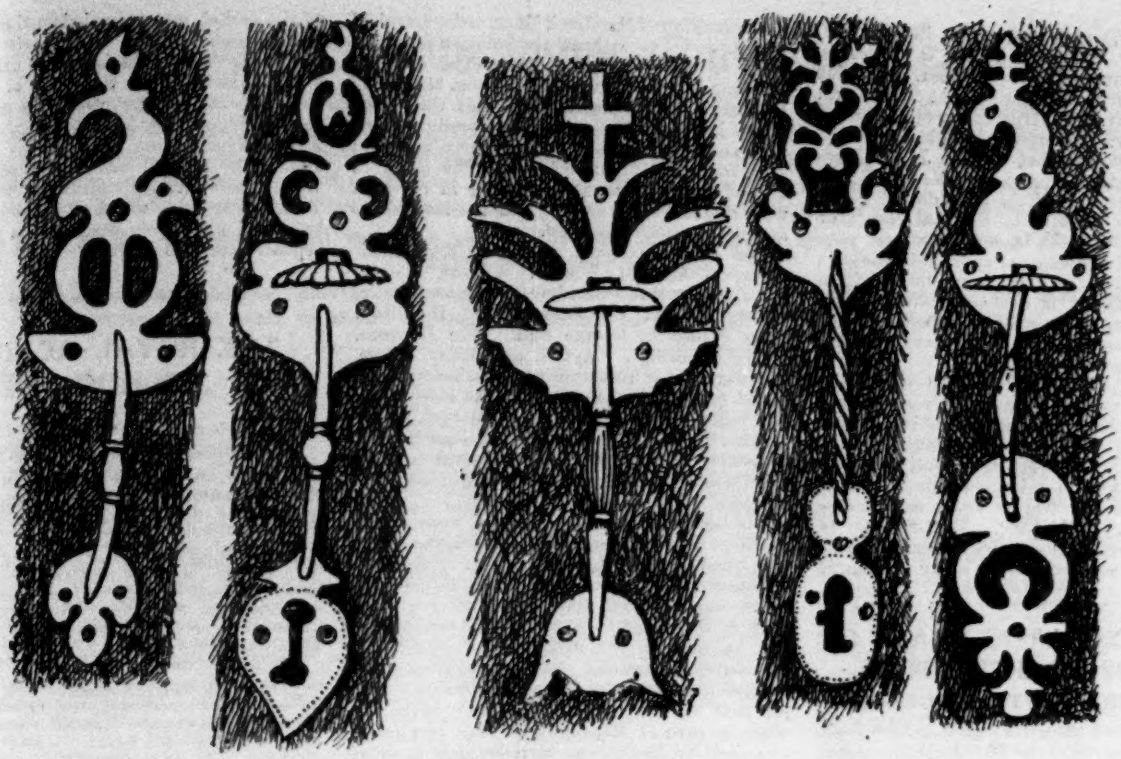


Piedmontese Door Latches.

(From "Piedmont," by Estella Canziani & Eleanour Rohde.)

For this purpose a sub-committee, consisting of Professor Unwin, F.R.S., Mr. C. S. Meik, M.Inst.C.E., and Mr. T. Sims, C.B., M.Inst.C.E., was appointed to superintend large-scale tests of plain and reinforced mortar and concrete slabs. In another direction of inquiry tests were made for the Committee at the National Physical Laboratory on the percolation of water through plain and reinforced concrete and on the expansion and contraction of the same materials when immersed in water. Tests were also made at the National Physical Laboratory to ascertain the effects of repetitions of load on a reinforced-concrete beam. The results of the three series of investigations are fully set forth in the present Report, to which the reader is referred for details.

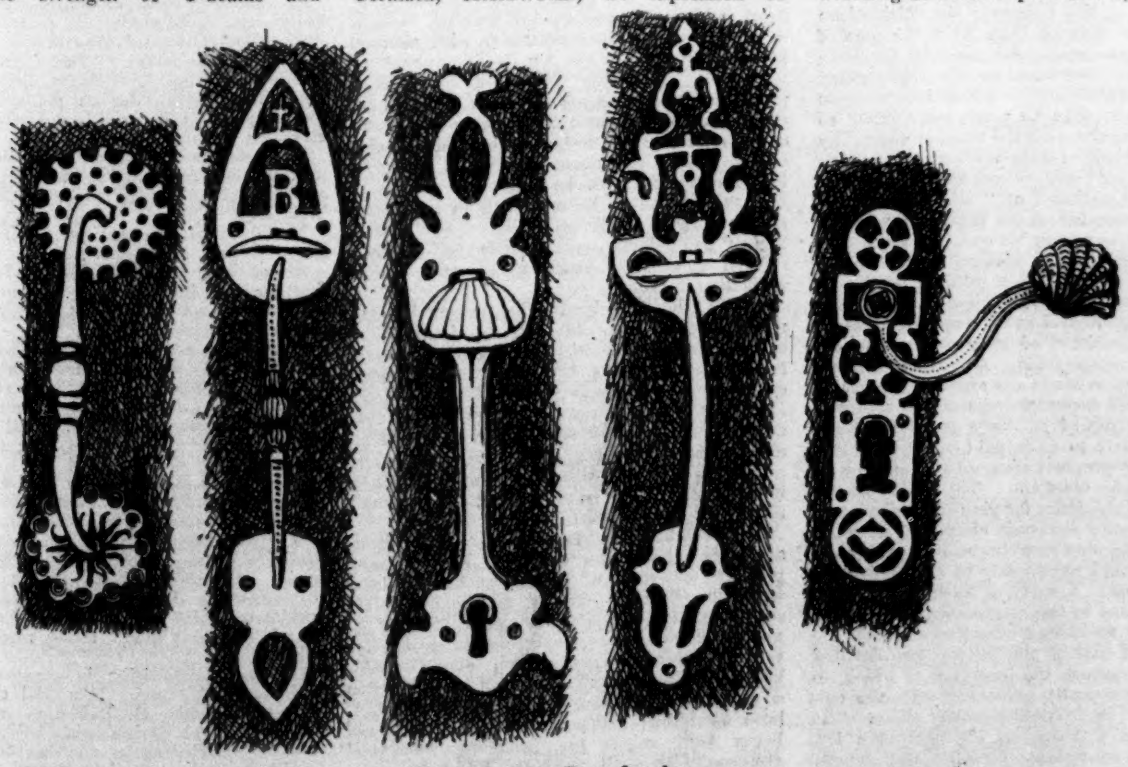
The Report also discusses the results of tests conducted by Messrs Kirkaldy & Son for H.M. Office of Works to ascertain the compressive strength of concrete cubes and the ultimate strength of T-beams and columns with and without reinforcement, and includes memoranda dealing with experiments made by Mr. W. W. Squire, M.Inst.C.E., and with the testing of a large reinforced concrete truss for Messrs. Coode, Matthews, Fitzmaurice, & Wilson.

Although the tests mentioned are of very limited scope as compared with those conducted by the French Commission and those in progress by the German Committee on Reinforced Concrete, the Institution of Civil Engineers are to be congratulated on the fact that they have set an example in this country by introducing research work into inquiries connected with reinforced-concrete practice.

A very important subject for investigation by the Committee was the consideration of the methods of calculation that might safely be used in the design of reinforced-concrete structures, and it is satisfactory to find in the memorandum by Mr. F. E. Wentworth-Shields, M.Inst.C.E., and Professor J. D. Cormack, M.Inst.C.E., an expression of opinion to the effect that, subject to certain qualifications and reservations, the rules set forth in the Second Report of the Royal Institute of British Architects may be applied with confidence by engineers, this view being endorsed by the Inst.C.E. Committee.

The useful summary, given in the Preliminary Report, of building and other regulations governing the employment of reinforced concrete in various countries is now supplemented by a synopsis of the Chicago Municipal Regulations, and a memorandum is included reviewing the series of rules, the Committee finding that no changes of importance have been introduced during the past three years, except those embodied in the code of the New York City authorities.

The volume concludes with a series of twenty-nine reports on works executed in this country and abroad. The works in this country include:—Wharves at Liverpool Docks, coaling jetty at Southampton, quay widening at Southampton Docks, reservoir at



Piedmontese Door Latches.

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Bournemouth, corn silos in Bermondsey, Royal Liver Friendly Society's Offices in Liverpool, flour mill at Swansea, and slab foundation for a machine shop at Silvertown. The reports on these structures were prepared by Mr. E. W. Hollingworth, A.M.Inst.C.E., and critically examined by Mr. J. M. Moncrieff, M.Inst.C.E. As Mr. Moncrieff has pointed out, reports of the kind do not throw much definite light upon the real object of the inquiry. At the same time we may remark that the absence of appreciable defects or deterioration in structures dating from 1897 and onwards is distinctly satisfactory, and it is open to question whether ordinary methods of construction would have afforded an equally clean sheet.

While the Report as a whole cannot be said to add very largely to previous knowledge, it certainly contains some instructive summaries of data and facts, making it a book which clearly deserves attention by all who are engaged in reinforced-concrete construction. The general arrangement is distinctly good, and the subject-matter is printed in paragraphs under separate headings in a manner facilitating ready reference.

THE NEO-CLASSIC PHASE OF ENGLISH ARCHITECTURE:

THE PERIOD OF THE REGENCY.

MR. A. E. RICHARDSON'S eighth lecture dealt chiefly with England from 1800 to 1820. After a brief sketch of the political and social events of the time, in which he laid stress on the sudden growth of industrialism, which necessitated an abnormal expansion of cities and towns, the lecturer turned to study the architecture of the period and the influences which shaped its expression. "At the outset of the nineteenth century," he said, "we see the beginning of that great divergence of opinion which resulted in the 'battle of the styles.' The Classic tradition was split into two sections by the mediæval wedge. One half was shivered and lost, the other proved too strong to shatter, and has survived to the present day. To make the simile clearer, the Classic tradition, which up to 1830 had embraced both civil and domestic architecture, was henceforth developed almost solely for the design of public and official buildings, while the Gothic enthusiasts claimed the mastery in other directions. But the so-called triumph of the opposing school was proclaimed too early. The deeply-rooted Classic tradition withstood the shocks of storm and controversy of the later years of the nineteenth century, and so strong is its spirit that after passing the cycle of one hundred years it is again in the ascendant."

Returning to the Regency, Mr. Richardson dealt with the work of John Nash, "a man of daring enterprise and great capacity for town planning, but deficient in the elementary training of architecture." His activities began in 1797, and in 1814 he acted temporarily as Surveyor-General during the vacancy caused by the sudden death of James Wyatt. His best-known works are Regent-street and Buckingham Palace. "He gathered up," said the lecturer, "the various models of the earlier schools and transposed them to suit his own problems. No other architect in the history of the classic development achieved such brilliant success in the handling of masses of buildings as Nash, who attained unity of effect in his street architecture by the juxtaposition of structures which are dissimilar in composition. And if the original façades of Regent-street are examined it will be found that the resourcefulness of the architect in the latter regard is above question. Nash does not appear to have paid much attention to detail, the proportioning and composing of buildings was his chief aim. The Gothic school, obsessed with the desire for pinnacled silhouettes was blind to the academic charm of his work and yelped to a man in a chorus of disapproval: what they would have made of the street one dreads to think. A study of Nash's work offers to us all lessons in the composition of primary masses which we cannot afford to overlook."

The second half of the lecture was devoted to the Greek school, the inception of which, in its purity, practically coincided with the culmination of the Græco-Roman phase. "It resulted from a desire on the part of a few pedants to transplant literally the temple porticos of Greece without attempting to adapt their form to modern problems. Many egregious mistakes followed, mainly arising from the endless repetition of the Greek Doric order attached to square boxes without appreciation of either form or utility. This at first sight seems a scathing indictment to prefer against the style; but it should be remembered that the Greek phase in its earlier moods was purely experimental and transitional to the more enduring Neo-Grec and Italian reaction. The mistakes of the Greek phase have nothing in common with the successes, and it is to the latter that attention must be directed.

The chief exponents of Anglo-Greek architecture comprised William Wilkins, Gandy, Deering, Sir Robert Smirke, Decimus Burton, Elliot, Thomas Hamilton, David Hamilton, John Papworth, George Smith, the Inwoods, Henry Goodridge, Playfair, and many others. The duration of the style as a distinct manner lasted but twenty years, losing its identity in the fuller renderings of such masters as Sir Charles Barry, Professor Cockerell, and Harvey Lonsdale Elmes; but the sequence of the Neo-Classic tradition was continued unchecked."

Mr. Richardson's slides included some reproductions of engravings of Regent-street as it was when Nash first completed it. Originally the Quadrant had a colonnade over the footpath, which was removed about 1850 to give more light in the shops. Pennithorne substituted a fine balcony on the mezzanine floor for the demolished colonnade, and the result was, the lecturer thought, even better than before. The junction of the curving quadrant with the straight part of Regent-street was admirably managed by Nash, who introduced a domical feature at the corner of Vigo-street. The termination of the Quadrant towards Piccadilly was the County Fire Office, which, as Mr. Richardson pointed out, not only formed, with its feature of columns, a fine stop to the design of Regent-street, but also served to close in the vista when looking up Lower Regent-street Originally, when looking south from Oxford-circus, the spire of St. James's, Piccadilly, had been visible over the housetops, but now everything seemed crushed by a huge pile of brickwork dwarfing Nash's buildings.

Another of this architect's undertakings which the lecturer illustrated was Buckingham Palace, which he considered his finest work, not only for its design and planning, but for its detail, which, contrary to Nash's usual habit, was quite good. Originally the front of the main courtyard was not closed in, but only occupied by the Marble Arch. This was removed to give place to the block which is still there, and has just been refaced by Sir Aston Webb. The garden front was, Mr. Richardson said, by far the best part of the Palace, and it was a great pity that the whole building could not be bodily turned round, and this façade made visible to the public. The Marble Arch itself, he thought quite good of its kind, though it would not stand comparison with similar French work such as the Arc de Triomphe.

Smirke's work was illustrated by several photographs, including one for the entrance to the West Strand, which the lecturer felt to be quite academic in design. The rest of the street, except for Somerset House and the island churches, was, he said, quite chaotic, and such as might be met with in the main street of any small provincial town. Some houses in Belgrave-square, also by Smirke, showed the Greek phase at its best, quite without pedantry.

Lang's original design for the Customs House, reproduced from an old print, consisting of a square central mass with subsidiary columnar features at the sides, Mr. Richardson thought quite one of the best things of the period. Built on a foundation of beech piles, against the architect's wishes, the central part collapsed in a few years, and Lang had to retire from his profession most unfortunately. Smirke rebuilt it, adding columns, and spoiling the original novelty of the design.

Wilkins's finest achievement, Mr. Richardson said, was University College. It was not pedantic, like most of his work. The portico, with the effective breaking of the flights of steps, and the well-attached wings, formed a fine monumental group, only slightly spoiled by the meaningless dome above, placed there because Wilkins could never rest content with a plain skyline. The side wings were added later by Lewis, and a screen was at present being built across the front by Professor Simpson, with whose work Mr. Richardson felt himself in complete sympathy.

The National Gallery, though admirably planned, and in detail the most perfect building of the period, was nevertheless the great failure of the time. Wilkins was greatly handicapped by having to use material from Carlton House—a fact which ruined the scale of the portico. The lecturer, however, showed a photograph of the building closing in the vista along Pall Mall East, where its too great length was hidden, and, as he pointed out, it grouped very well. Wilkins was also responsible for the lay-out of Trafalgar-square, which Mr. Richardson said had been not inaptly described as "a sahara of asphalt with two squirts."

THE ROYAL ACADEMY SCHOOLS:

PRIZE LIST.

THE Annual Prize-giving of the R.A. Schools took place on Wednesday at Burlington-house, the President, Sir Edward Poynter, distributing the prizes. The following is from the list:—

Historical painting—"The Pool of Bethesda," St. John, v., gold medal and travelling studentship (£200), Gerald Leslie Brockhurst.

Landscape painting—"A Pebbly Brook," Creswick prize (£25) and silver medal, Gaynor Elizabeth Bury.

Design for the decoration of a portion of a public building—"A Boar Hunt," first prize (£30) and silver medal, not awarded; second prize (£10) and bronze medal, Mary Wilhelmina D. Hickson.

Design in monochrome for a figure picture—"The Escape of the Spies," Armitage prizes, first (£50) and silver medal not awarded; second (£10) and bronze medal, Winifred Beatrice Hardman.

Composition in colour—Prize (£10) and silver medal, Victor Noble Rainbird.

Cartoon of a draped figure—"A Suppliant," prize (£25) and silver medal, Hilda Marion Hechle.

Two paintings of a figure from the life, first prize (£10) and silver medal, Madeline Graham Barker; second prize, bronze medal, Robert John Swan.*

Two paintings of a head from the life, first prize (£5) and silver medal, not awarded; second prize, bronze medal, Reginald Henry Nathan.

Set of four drawings of a figure from the life, first prize (£15) and silver medal, Victor Noble Rainbird; second prize (£10) and bronze medal, Johannes G. A. Pisani.

Set of three studies of drapery, silver medal, Alice Dorothy Cohen.

Drawing from the antique, prize (£5) and silver medal, Frances Howes Galbrajth.

Painting from still life, prize (£5) and silver medal, Frances Howes Galbraith; extra prize, bronze medal, Violent Mary Barnewall.

Composition in sculpture—"Diana and Endymion," gold medal and travelling studentship (£200), Gilbert Ledward.

Model of a design—"David and Goliath" (the decapitation of Goliath), first prize (£30) and silver medal, Joseph Hermon Cawthra; second prize (£10) and bronze medal, Ernest Rowland Bevan.

Two models of a bust from the life, first prize, silver medal, Edgar Allan Howes; second prize, bronze medal, Alfred Henry Wilkinson.*

Model from the antique, prize (£5) and silver medal, Alexander Stiles.

Set of three models of a figure from the life, first prize (£15) and silver medal, Peter Induni; second prize (£10) and bronze medal, Thomas Humphrey Paget.

Design in architecture—"A Town Hall for an Important City," gold medal and travelling studentship (£200), David John Chisholm.

Set of architectural drawings—"The West Front of St. Mary-le-Strand," first prize, silver medal, Harold Clayforth Mason; second prize, bronze medal, not awarded.

An architectural design, prize (£20) and silver medal, Walter Llewellyn Clark.

Set of drawings of an architectural design, first prize (£15) and silver medal, James Mollison Wilson; second prize (£10) and bronze medal, Harold Clayforth Mason.

Perspective drawing in outline (open to architects only)—"The West Front of St. Martin's-in-the-Fields," silver medal, no competition.

Original composition in ornament (open to architects only), prize (£5) and silver medal, Ernest Alexander R. Rahbula.

Architectural design with coloured decoration—"The Ceiling of a Great Hall," 100 ft. by 50 ft., silver medal, Geoffrey Philip A. Fildes.

* Disqualified owing to having received the same prize before.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number: Competitions, iv.; Contracts, iv. vi. viii. x. xii.; Public Appointments, xxi.; Auction Sales, xxvi. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.**

Competitions.

DECEMBER 19.—**Bury.**—WORKMEN'S DWELLINGS.—The Corporation of Bury are prepared to consider schemes from architects and builders for the erection of ten pairs of semi-detached cottages, as an extension to the existing housing scheme, off Bolton-road. Particulars on application to the Borough Engineer, Bank-street, Bury. Deposit, £1 1s.

DECEMBER 31.—**London.**—GOVERNMENT BUILDINGS.—The Commissioners of H.M. Works and Public Buildings invite designs from architects in competition for new offices for the Board of Trade, etc., in Whitehall-gardens, S.W. For particulars, see issues for September 5 and October 17, and also advertisement in issue of September 5.

JANUARY 2, 1914. — **Manchester.**—NEW BUILDINGS AND ALTERATIONS.—The Board of Directors of the Manchester Royal Exchange, Ltd., invite architects to submit designs for additional new buildings and alterations on the existing Exchange buildings. See advertisement in issue for September 5.

FEBRUARY 1. — **Coventry.** — TECHNICAL INSTITUTE.—The Coventry Corporation invite competitive sketch plans for a Municipal Technical Institute at Pool Meadow.

MARCH 20. — **Belfast.** — ART GALLERY AND MUSEUM.—The Belfast Corporation invite designs for above buildings. Total cost not to exceed £75,000, of which only £30,000 will be spent at once. Assessor, Mr. John J. Burnet, A.R.S.A., LL.D. See advertisement in issue of November 7.

APRIL 1.—**Sofia.**—DESIGNS FOR A ROYAL PALACE AND LAW COURTS.—Particulars from the Commercial Intelligence Branch of the Board of Trade, Basinghall-street, E.C. See page 173, August 9, and page 350, September 27, 1912; also page 708, June 20.

APRIL 2. — **Ottawa.** — DEPARTMENTAL AND COURTS BUILDINGS. — The Department of Public Works, Ottawa, invite architects to submit sketch designs in a preliminary competition for above buildings. Six will be chosen from these for final competition. The five unsuccessful competitors will receive $3,000. The winner will be entrusted with the work. See particulars in issue for September 19 and advertisement in issue of September 12.

* MAY 4.—**London.**—ST PAUL'S BRIDGE.—The Bridge House Estates Committee of the Corporation of London invite designs from British architects for the architectural treatment of St. Paul's Bridge. Premiums, £300, £200, and £100 respectively. The assessor is Sir William Emerson, P.P.R.I.B.A.

* MAY 15.—**London.**—CONCRETE COTTAGE.—The proprietors of *Concrete and Constructional Engineering* invite architects and others residing in the British Empire to submit designs of a detached or semi-detached labourer's cottage. Premiums, 100 guineas, 50 guineas, 25 guineas, and two at 10 guineas.

* NO DATE.—**North Wales.**—NAMES OF COMPETITORS.—Competitors who submitted designs for the King Edward VII. Memorial are requested to send their names to Messrs. Sykes & Glazier, solicitors, Newport, Mon.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

DECEMBER 15. — **Aberystwyth.**—REPAIRS.—The Cardiganshire C.C. invite tenders for (1) repairs to the dwelling-house at Gelmast, particulars of which can be obtained of the County Land Agent, Llwyndafydd, Cross Inn, S.O., Cardiganshire; (2) repairs to the boundary fences at Gelmast. Mr. Tom Parry, Cambrian-chambers, Aberystwyth.

DECEMBER 15. — **Canterbury.** — ALTERATIONS.—The Canterbury B.G. invite tenders for converting the mortuary into a disinfector station and the meal-house into a mortuary. Quantities of Mr. F. H. Dore, 25, Watling-street, Canterbury. Deposit, £1 1s.

DECEMBER 15. — **Hereford.**—REPAIRS, ETC.—The Herefordshire C.C. invite tenders for repairs, additions, and cleansing to four houses, with outoffices, at Rotherwas, near Hereford. Quantities obtained at 132, St. Owen-street, Hereford.

DECEMBER 15. — **Linthwaite.** — HOUSES.—The Linthwaite Industrial Co-operative Society, Ltd., invite tenders for the erection of nine dwelling-houses and formation of street at Linthwaite. Quantities, etc., of Messrs. Lunn & Kaye, architects, Milnsbridge and Huddersfield.

DECEMBER 15. — **Nelson.** — DEMOLITION.—The Corporation invite tenders for taking down and clearing the site of the Albert Hall. Particulars of the Borough Engineer, Cross-street, Nelson.

DECEMBER 15.—**Treforest.**—RIFLE RANGE.—For the construction of a rifle range at Treforest, including earthworks, retaining wall, marker's shelter, etc. Specifications of Messrs. A. O. Evans, Williams, & Evans, architects, Pontypridd. Deposit, £1 1s.

DECEMBER 15.—**Wootton Wawen.**—COTTAGES.—For building a pair of cottages at Wootton Wawen, Warwickshire. Mr. T. Stevens, F.R.I.B.A., Richmond-chambers, Bournemouth.

DECEMBER 16. — **Chalfont St. Peter.** — ADDITIONS. — For new classroom and cloakroom at Chalfont St. Peter Girls' School. Specifications, etc., of Miss Lowther, George Inn, Chalfont St Peter. Mr. A. J. Elkington, Rock House, Chalfont St. Peter.

DECEMBER 16. — **Manchester.** — OFFICES.—The Sanitary Committee invite tenders for the erection of offices in Hardman-street, Deansgate, for phthisis cases. Specifications, etc., at the office of the City Architect, Town Hall. Deposit, £1 1s.

DECEMBER 17. — **Abergavenny.**—ALTERATIONS, ETC.—For certain alterations and additions to the administrative block of the Monmouthshire County Asylum, Abergavenny, for the Committee of Visitors. Specification, etc., of the architect, Mr. E. A. Johnson, F.R.I.B.A., Abergavenny. Deposit, £3.

DECEMBER 17.—**Barnsley.**—INSTITUTE.—For the various works required to be done in the erection of an institute at Haigh, near Barnsley. Messrs. Crawshaw & Wilkinson, architects, 13, Regent-street, Barnsley.

DECEMBER 17.—**Bolton-upon-Dearne.**—HOUSES.—For the erection of three houses at Bolton-upon-Dearne. Quantities of Mr. F. Birkinshaw, architect, 20, Eldon-street, Barnsley.

DECEMBER 17.—**Cardiff.**—REBUILDING.—For the rebuilding of the Three Elms Inn, Whitchurch, Cardiff, for the Ely Brewery Company, Ltd. Quantities of Mr. Sidney Williams, Licentiate R.I.B.A., architect and surveyor, Wharton-street, Cardiff. Deposit, £1 1s.

DECEMBER 17.—**Chester-le-Street.**—RECREATION HALL.—The R.D.C. of Chester-le-Street invite tenders for the erection of a recreation hall at their Consumption Sanatorium, Birtley Fell. Mr. John H. Mole, Surveyor, Chester-le-Street. Deposit, £1 1s.

DECEMBER 17. — **Elgin.**—FACTORY ADDITIONS.—For the mason, carpenter, slater, plumber, painter, and glazier works of additions to net factory for Messrs. Low, Sons, & Co., Ltd. Specifications of Mr. Charles C. Doig, architect, Elgin.

DECEMBER 17. — **Glasgow.**—ALTERATIONS.—The Corporation invite offers for the several works required to convert the fire-engine shed at Shettleston Police-office into a muster hall. Specifications at the Office of Public Works, 64, Cochrane-street.

DECEMBER 17. — **Paddock.** — HOUSES.—For the erection of two houses at Wren-street, Paddock. Quantities of Messrs. J. Berry & Sons, architects, 3, Market-place, Huddersfield.

* DECEMBER 17.—**Wood Green.**—ALTERATIONS AND ADDITIONS.—The Wood Green U.D.C. invite tenders for alterations and additions to White Hart-lane School.

DECEMBER 18. — **Abercynon.** — WALL. — The Merthyr and Aberdare Joint Farms Management Committee invite tenders for the rebuilding of a length of about 344 yds. of the boundary wall to their land on the common, lying to the north of, and near to, the Traveller's Rest, Abercynon. Specification, etc., of Mr. E. H. Battram, Parknewydd Farm, Abercynon.

DECEMBER 18. — **Aberdare.**—CINEMA, ETC.—For the erection of a cinema and billiard saloon at Cwmaman, near Aberdare, for the Cwmaman Cinema Company, Ltd. Quantities, etc., of Mr. David Morgan, F.R.I.B.A., architect and surveyor, Charles-street-chambers, Cardiff. Deposit, £2 2s.

DECEMBER 18. — **Devonport.** — HOSPITAL PAVILION.—The Corporation of Devonport invite tenders for the erection of a new ward pavilion and other works at the Infectious Diseases Hospital, Swilley-road. Specifications, etc., of the Borough Surveyor, 29, Ker-street, Devonport. Deposit, £3 3s.

DECEMBER 18.—**Uldale.**—CHURCH REPAIRS.—For the various works required in the repairs to Uldale Old Church. Specifications, etc., at the church on application to the Rector, and of Mr. J. H. Martindale, F.R.I.B.A., architect, Carlisle.

DECEMBER 18. — **Walton-on-Thames.** — MORTUARY.—The Burial Board of Walton-on-Thames invite tenders from builders carrying on business either in Oatlands, Hersham, or Walton-on-Thames, for the erection of a mortuary at Hersham. Specification, etc., from the Architect to the Board, Mr. Fredk. Pinches, A.R.I.B.A., "Lyndale," King's-road, Walton-on-Thames.

DECEMBER 19. — **Kendal.** — HOUSES.—The Corporation invite tenders for separate trades required in the erection of twenty-four cottages at Two Stiles Field, Kendal Green. Work to be let in two contracts. Quantities, etc., of Mr. F. W. Oxberry, Borough Surveyor, Town Hall, Kendal.

DECEMBER 20.—**Bangor.**—DRILL HALL, ETC.—For the erection of a riding school, drill hall, caretaker's house, and other buildings at Glynne-road, Bangor, for the Carnarvonshire Territorial Force Association. Specification, etc., of the architect, Mr. E. Evans, 8, Castle-street, Carnarvon.

DECEMBER 20.—**Keighley.**—RECORDER HOUSE.—The Corporation invite tenders for the construction of a recorder and valve house at Ponden Reservoir, about three miles from Haworth Station. Specification, etc., of Mr. H. Ratcliffe Barnett, M.Inst.C.E., Town Hall, Keighley.

DECEMBER 20. — **Oxford.** — REPAIRS.—The Corporation of Oxford invite applications from persons desirous of being appointed to carry out work required to be done in the building (for repairs) trades for the ensuing year. Mr. Richard Bacon, Town Clerk, Town Clerk's Office, Town Hall, Oxford.

DECEMBER 22. — **Bentley.**—SCHOOL.—The West Riding E.C. invite whole or separate tenders for the Bentley Toll Bar new school. Specifications, etc., of the Education Architect, County Hall, Wakefield. Deposit, £1.

DECEMBER 22.—**Braunton.**—COTTAGES.—For the erection of six cottages at Wrafton-lane, Braunton, for Mr. H. Isaac. Specification, etc., of Mr. H. S. Johnson, 56, Poutport-street, Barnstaple.

* DECEMBER 22. — **Hackney.** — SUB-STATION BUILDINGS.—The Hackney B.C. invite tenders for erection of three electricity sub-station buildings.

DECEMBER 22.—**Morecambe.**—SHOP.—The Lancaster and District Co-operative Society invite tenders for the erection of a shop at Beach-street, Bare, Morecambe. Quantities of Messrs. Wright & Sons, surveyors, 24, Castle-street, Lancaster.

DECEMBER 22. — **Sutton.** — RIFLE RANGE AND LECTURE-ROOM. — The Territorial Force Association of the County of Surrey invite tenders for the erection of a miniature rifle range and a lecture-room at the Drill Hall, Sutton. Specifications, etc., of Messrs. Jarvis & Richards, Architects to the Association, 10, Queen Anne's-gate, Westminster, S.W. Quantities from Messrs. Robinson & Roods, quantity surveyors, 37, Bedford-row, W.C. Deposit, £1 1s.

* DECEMBER 23. — **Wallsend.** — LABOUR EXCHANGE.—The Commissioners of H.M. Works, etc., invite tenders for the erection of a Labour Exchange.

DECEMBER 27. — **Liddington.**—COTTAGES.—The Highworth R.D.C. invite tenders for building four cottages at Liddington. Mr. John P. Kirby, Clerk to the Council, 100, Victoria-road, Swindon.

* DECEMBER 30.—**Canterbury.**—ADDITIONS TO ASYLUM.—The Committee of Visitors of Canterbury Asylum invite tenders for additions to the Asylum.

* DECEMBER 31.—**Enfield.**—RECEIVING WARD.—The Edmonton Guardians invite tenders for erection of rooms at the receiving ward.

* JANUARY 1, 1914.—**St. George's-in-the-East.**—BUILDING WORKS.—The St. George's Guardians invite tenders for certain building works at their schools.

* JANUARY 2.—**Woolwich.**—OFFICERS' QUARTERS.—The Secretary of State for War invites tenders for erection of warrant officers' quarters.

* JANUARY 3. — **Teddington.** — BUILDINGS, SHAFT, SEWERS, ETC.—The Teddington U.D.C. invite tenders for erection of buildings, chimney shaft, sewers, manholes, connections, roadways, etc.

JANUARY 12.—**Partick.**—SHED.—The Trustees of the Clyde Navigation invite tenders for the construction of a goods shed, 664 ft. long by 100 ft. wide, in one span, on Merklands Quay, Partick. The contract, which is to be under one tender, embraces excavation and concrete work, brickwork in back and end walls, about 400 tons of steelwork, timber work, glazier, plumber, slater, and painter work. Specification, etc., of Mr. T. R. Mackenzie, General Manager and Secretary, 16, Robertson-street, Glasgow.

NO DATE. — **Bridgend.** — STRONG-ROOM, ETC.—For the construction of a strong-room and other works at the bank premises at Bridgend for the Metropolitan Bank (of England and Wales), Ltd. Particulars of Messrs. George F. Lambert & Son, architects and surveyors. Deposit, £2 2s.

[Those with an asterisk (*) are advertised in this issue.]

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

* No Date.—**London.**—Repairs, etc., to Buildings.—The Commissioners of H.M. Works invite tenders for ordinary works and repairs to buildings.

* No Date.—**London.**—Small Houses.—Tenders are invited for the erection of two pairs of small semi-detached houses.

No Date.—**Lowestoft.**—Alterations, etc.—For alterations and redecoration of lecture hall, Crown-street, Lowestoft, for the Mutford and Lothingland B.G. Mr. H. C. W. Blyth, architect, Victoria-chambers, Lowestoft.

No Date.—**Shaldon (near Teignmouth).**—For erection of a country residence and farm buildings. Quantities on deposit of £2 2s. from Mr. F. G. Moore, architect and surveyor, 9, Fleet-street, Torquay.

No Date.—**Tredegar.**—House.—For the erection of a villa residence at Tredegar for the Tredegar Workmen's Medical Aid Society. Specifications, etc., of the architect, Mr. W. Edgar Jones, 1, Commercial-street, Tredegar.

ENGINEERING, IRON, AND STEEL.

December 15.—**London.**—Copper.—The Master of the Mint invites tenders for the supply of 100 tons of copper in ingots. Mr. T. H. Elliott, Deputy Master.

December 16. — **Cardiff.** — Rails, etc. — The Cardiff Corporation invite tenders for the manufacture, supply, and delivery of 500 tons of steel grooved girder rails (British standard section Nos. 4 and 4 C) and 23 tons of steel fishplates. Specification, etc., at the office of Mr. W. Harpur, M.Inst.C.E., City Engineer, Cardiff.

December 16.—**Manchester.**—Fittings, etc.—The Tramways Committee of the Manchester Corporation invite tenders for the supply of the following material for route number boxes:—(*a*) Metal fittings; (*b*) aluminium number plates; (*c*) metallic filament lamps. Specifications of Mr. J. M. McElroy, General Manager, Corporation Tramways, 55, Piccadilly, Manchester.

December 16.—**Mardy, etc.**—Fencing and Iron Sewers. — The Rhondda U.D.C. invite tenders for the following works, viz.:—(1) The supply and erection of about 720 yds. of corrugated-steel pale fencing for the Recreation Ground, Mardy; (2) the supply and erection of about 430 yds. of corrugated-steel pale fencing for the Recreation Ground, Blaenrhondda; (3) about 290 yds. of 9-in. cast-iron pipe sewer, in six sections, at Ferndale; (4) about 100 yds. of 9-in. cast-iron pipe sewer at Williamstown. Specifications at the Council Offices, Pentre. Deposit, £1 1s. each contract.

December 17.—**Egypt.**—Steel.—The Egyptian War Department invites tenders for the supply of mild steel tees, angles, and bars and sheets. Particulars from Sir A. L. Webb, K.C.M.G., Queen Anne's-chambers, Westminster, S.W.

December 17. — **India.**—Iron and Steel.—The East Indian Railway Company invite tenders for the supply and delivery of (1) galvanised sheets, etc.; (2) pig iron (Summerlee and cold blast); (3) wrought iron, bars, etc.; (4) steel material (angles, bars, plates, sheets, etc.), as per specifications to be seen at the Company's offices, Nicholas-lane, London, E.C.

December 17. — **Manchester.**—Heating.—The Libraries Committee invite tenders for heating the Carnegie Library, Chorlton-cum-Hardy. Quantities, etc., of the City Architect, Town Hall. Deposit, £1 1s.

* December 17. — **Wood Green.** — Heating Scheme.—The Wood Green U.D.C. invite schemes and tenders for heating White Hart-lane School.

December 18. — **Cannock.**—Fire Appliances.—The Guardians of Cannock Union invite tenders for the supply and fixing of fire appliances, together with the necessary cast and wrought iron pipes for connection to the existing water mains. Specification, etc., from Mr. Herbert M. Whitehead, Engineer, Penkridge, Stafford. Deposit, £1 1s.

December 18.—**Manchester.**—Iron Pipes.—The Gas Committee of the Corporation of Manchester invite tenders for the supply of about 165 tons of cast-iron main pipes, 30 in. diameter, and several cast-iron irregular pipes. Specification of Mr. Fredk. A. Price, Superintendent, Gas Department, Town Hall, Manchester.

December 19. — **Manchester.** — Electrical Machinery.—The Electricity Committee of the Manchester Corporation invite tenders for the supply, delivery, and erection of motor converters or rotary converters and static transformers. Specifications of Mr. F. E. Hughes, Secretary, Electricity Department, Town Hall, Manchester. Deposit, £2 2s.

December 22. — **Dundee.** — Steel Gates.—The Trustees of the Harbour of Dundee invite offers for the construction, supply, and delivery, erected complete in their position at the west end of the lockway of Earl Grey Dock, of a pair of steel gates for closing the entrance to Earl Grey Dock. Specifications of Mr. J. Hannay Thompson, M.Inst.C.E.M.Sc. General Manager and Engineer, Harbour Trust. Deposit, £2 2s.

December 22.—**Rhyl.**—Standards and Tubing.—The Rhyl U.D.C. invite tenders for the supply of cast-iron standards and steam tubing. Particulars of Surveyor, Mr. A. A. Goodall, Council Offices.

December 22. — **Salford.** — Retorts.—The Gas Committee invite tenders for the supply and erection of an installation of vertical retorts on the continuous system, capable of carbonising 100 tons of coal per 24 hours. Specification, etc., of Mr. William W. Woodward, Engineer, Gas Offices, Bloom-street, Salford. Deposit, £1 1s.

December 22.—**York.**—Stores.—The Electricity and Tramways Committee of the York Corporation invite tenders for the supply of the undermentioned stores and materials between January 1, 1914, and December 31, 1915, viz.:—Arc lamp carbons, carbon brushes, electrical accessories, incandescent lamps (carbon and metallic filaments), electric meters and time switches, electric motors and motor switches, general stores, and engineering stores. Mr. J. W. Hame, Engineer and Manager, Electricity Offices, Clifford-street, York.

December 23.—**Belfast.**—Sewerage Ironwork.—The Improvement Committee invite tenders for the supply of fifty-one cast-iron Penstock frames and covers and ninety-three manhole frames and covers for outlet sewer. Specification, etc., of the City Surveyor, City Hall, Belfast. Deposit, £1 1s.

December 23. — **Hunstanton.** — Gas Works.—The New Hunstanton U.D.C. invite tenders for (1) construction of brick and cement gasholder, tank, etc.; and (2) of telescopic gasholder. Specification of the Clerk of the Council or of Messrs. E. H. & S. E. Stevenson, 38, Parliament-street, Westminster. Deposit, £1 1s. each contract.

December 31. — **Hemingborough.**—Iron Railing. — The Vicar of Hemingborough invites tenders for erection of 49 yds. of iron railing, 5 ft. high, on stone base, at churchyard.

December 31. — **London.**—Fire-engines, etc.—The London C.C. invite tenders for the supply of (*a*) petrol-driven motor fire-engines, and (*b*) petrol-driven motor escape-vans, for use by the London Fire Brigade. Specifications of the Clerk of the Council, at the County Hall, Spring-gardens, S.W. Deposit, 10s. each specification.

December 31. — **Poplar.** — Hydro Extractor.—The Poplar B.G. invite tenders for the supply of one undriven hydro extractor, to be delivered and erected at the Workhouse, High-street, Poplar, E. Specification, etc., of Mr. G. Herbert Lough, Clerk to the Guardians, Guardians' Offices, 45, Upper North-street, Poplar, E.

* January 1, 1914.—**Rye.**—Bridge.—The East Sussex C.C. invite tenders for the repair of Monk Bretton Bridge (built of steel on brick abutments), and the reconstruction in ferro-concrete of the bridge decking. Specification, etc., at the County Surveyor's office, County Hall, Lewes. Deposit, £2 2s.

January 1.—**Thorpe.**—Fencing.—The Thorpe P.C. invite tenders for the supply and erection of iron fencing and gates in accordance with particulars which may be obtained on application to the Clerk at the offices, The Forges, Thorpe.

January 5. — **Hull.** — Bridge.—The North-Eastern Railway Company invite tenders for the construction of the superstructure of the bridge carrying the passenger lines over the goods lines at Priory-yard, Hull. The total weight of steel-work is about 350 tons. Specification, etc., at the office of Mr. C. F. Bengough, the Company's Engineer at York.

FURNITURE, PAINTING, MATERIALS, etc.

December 15. — **Chester.**—Stores.—The Committee of the Chester County Lunatic Asylum at Upton, near Chester, invite tenders for stores, including ironmongery, earthenware, timber, building materials, and paints and oils. Forms of tender of the Steward of the Asylum.

December 16. — **Gateshead.** — Stores.—The Asylum Committee of Gateshead invite tenders for the supply of oils, paints, glass, etc., and timber. Mr. W. Swinburne, Clerk to the Visiting Committee, Town Hall, Gateshead.

December 16. — **Godstone.** — Road Material.—The Godstone R.D.C. invite tenders for the supply of broken granite and other materials and for tarspraying for one year. Mr. Geo. E. Crowter, Surveyor, High-street, Godstone, Surrey.

December 16.—**Ilkeston.**—Painting, etc.—The Ilkeston E.C. invite tenders for painting, etc., Gladstone-street School. Specifications from Mr. W. Barton, Church-street, Ilkeston.

December 16. — **Manchester.**—Painting.—The Baths and Washhouses Committee invite tenders for painting at the following baths:—Bradford, New Islington, and Mayfield. Specifications at the City Architect's Office, Town Hall. Deposit, 10s. 6d.

December 16.—**South Shields.**—Disinfectants.—The Corporation invite tenders for the supply of disinfectants to the Health Department for the period of one year commencing January 1, 1914. Forms of tender of Dr. D. Morley Mathieson, Medical Officer of Health, Municipal Buildings, South Shields.

December 17. — **Clacton.** — Road Materials.—The Clacton U.D.C. invite tenders for the supply of 1 000 cubic yds. of flints. Specification of Mr. D. J. Bowe, Surveyor to the Council, Town Hall, Clacton-on-Sea.

December 17.—**Leicester.**—Brushes.—The Corporation of Leicester invite tenders for the supply of brushes, etc., for the year 1914. Mr. E. George Mawbey, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall. Deposit, 10s.

December 18. — **Ystradgynlais.**—Stores.—The South Wales Anthracite Colliery Company, Ltd., invite tenders for the supply of their colliery materials and stores over either six or twelve months as from January 1, 1914. Applications to the Company, Eagle-chambers, Swansea.

December 20. — **Reading.**—Road Materials.—The Berkshire C.C. invite tenders for the supply of broken road materials, gravel, and sand, for the twelve months ending March 31, 1915. Particulars of the County Surveyor, Shire Hall, Reading.

December 22. — **Warrington.** — Granite and Wood Blocks.—The Paving and Sewerage Committee invite tenders for 1,000 tons 4-in. granite or whinstone cubes and 5,000 Karri or Jarrah wood blocks, 9 in. by 4 in. by 3 in. Specifications at the office of the Borough Surveyor, Town Hall.

December 24. — **Devonport.** — Stores.—The Devonport Corporation invite tenders for the supply of the following stores and materials up to December 31, 1914:—(1) Masons', plasterers' and slaters' materials; (2) carpenters' materials, labour, etc.; (3) smiths' materials, labour, etc.; (4) painters' and glaziers' materials, labour, etc.; (5) plumbers' and gasfitters' materials, labour, etc.; (6) ironmongery; (7) sand; (8) brooms. Mr. R. J. Fittall, Town Clerk, Municipal Offices, Devonport.

December 24.—**Leeds.**—Stores.—The owners of Garforth Colliery invite tenders for iron, steel, iron and steel castings, wire ropes, nails, brattice cloth, indiarubber, timber, oils, greases, etc. Forms of tender of the owners of Garforth Colliery, near Leeds.

* December 29.—**Stepney.**—Materials, Service, etc.—The Stepney B.C. invite tenders for various materials and stores, and for the performance of certain services.

December 31.—**Dublin.**—Stores.—The Alliance and Dublin Consumers' Gas Company invite tenders from ironfounders, gun-barrel manufacturers, timber merchants, druggists, rope-makers, etc., for goods, to be delivered on the company's works, Great Brunswick-street, in such quantities as may be required from time to time up to December 31, 1914. Mr. Francis T. Cotton, Secretary and Manager, Dublin.

No Date.—**Wakefield.**—School Furniture.—The West Riding E.C. invite tenders for the supply of demonstration tables, plain and kindergarten, and chairs for infant children for a period of twelve months. Particulars on application to the Education Department, Elementary Branch, County Hall, Wakefield.

ROADS, SANITARY AND WATER WORKS.

December 15.—**Ivybridge.**—Steam Rolling.—The Ivybridge U.D.C. invite tenders for rolling the following stone on the roads in their district during the month of February next:—400 yds. local stone and 200 tons of Teign Valley stone. Mr. W. H. Full, Surveyor, Ivybridge.

December 15. — **Seisdon.** — Sewerage. — The R.D.C. invite tenders for the construction under a schedule of prices of that portion of the house connections and other appurtenant works which may be carried out in the near future under the Council's instructions. Specification, etc., of the Council's Engineer, Mr. William Fiddian, Stourbridge. Deposit, £1 1s.

December 15. — **Stockton-on-Tees.** — Street Works. — The Stockton-on-Tees R.D.C. invite tenders for street works at Preston-on-Tees. Specifications, etc., of Mr. J. Rodham, Surveyor, 20, Firkle-street, Stockton-on-Tees.

December 16. — **Acton.** — Street Works.—The Acton U.D.C. invite tenders for making-up the back passage in Green End-road; back passage No. 1, Grafton-road; and back passage No. 2, Speldhurst-road, in the Urban District of Acton. Specifications of the Surveyor, Council Offices, Acton.

December 16.—**Altrincham.**—Road Works.—The Altrincham U.D.C. invites tenders for the re-surfacing of George-street, with tarred Wigan slag. Specification of the Surveyor, Town Hall, Altrincham.

December 16.—**Banbury.**—Street Works.—The Corporation invite tenders for street works in King's-road. Specifications of Mr. George E. Wrigley, Borough Surveyor, Town Hall, Banbury.

December 16.—**Grimsby.**—Roads.—The Pastures Committee invite tenders for the construction of about 1,000 yds. of new roads on the Haycroft Estate. Specifications, etc., of Mr. H. Gilbert Whyatt, Borough Surveyor, 170, Victoria-street, Grimsby. Deposit, £2 2s.

December 16.—**London.**—Refuse Collection.—The London C.C. invites tenders for the collection, removal, and disposal of refuse, whether (1) sludge and other refuse from conduits; (2) dust, rubbish, and other refuse from car sheds and other depôts (except permanent way depôts); or (3) excavation rubbish or other refuse from permanent way routes and depôts, as may be required in connection with the Council's tramways during twelve calendar months, commencing January 22, 1914. Form of tender, etc., on application to the Chief Officer, London C.C. Tramways, 62, Finsbury-pavement, E.C.

* December 16.—**Willesden.**—Road Making and Paving.—The Willesden D.C. invite tenders for road making and paving works.

December 17. — **Chorley.** — Sewers.—The Corporation invite tenders for the labour required in the construction of the new main outfall sewer, manholes, sewage tanks, filter beds, bridges, and the carting of the bricks and other materials required in connection with the sewerage of the Bolton-road District of the Borough. Specification from the Borough Surveyor, Town Hall, Chorley.

December 17.—**Epping.**—Sewerage Works.—The Epping R.D.C. invite tenders for the construction of sewage disposal works at Nettesw... and the laying of sewers, together with the construction of manholes and all contingent works. Quantities, etc., of the engineers, Messrs. Tooley & Foster, of Queen's-road, Buckhurst Hill, Essex. Deposit, £1.

December 17. — **Hemsworth.** — Sewer. — The R.D.C. of Hemsworth invite tenders for the supplying and laying of about 474 yds. of earthenware pipe sewer, 9 in. in diameter, together with the necessary manholes, and a ventilator 20 ft. high in connection therewith at Hemsworth. Further particulars may be obtained from Mr. T. H. Richardson, Surveyor, Hemsworth.

[Those with an asterisk (*) are advertised in this issue.]

ROADS, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

DECEMBER 17.—**Rotherham.**—STREET WORKS.—The Corporation invite tenders for the making-up of Lincoln-street, Rotherham. Specifications from Mr. E. B. Martin, Borough Engineer, Rotherham.

DECEMBER 17.—**Rotherham.**—STREET WORKS.—The Corporation invite tenders for making-up Marsh-lane, Rotherham. Specifications from Mr. E. B. Martin, Borough Engineer, Rotherham.

DECEMBER 17.—**Rotherham.**—STREET WORKS.—The Corporation invite tenders for making-up Hatherley-road, Rotherham. Specifications, etc., of Mr. E. B. Martin, Borough Engineer, Rotherham.

DECEMBER 18.—**Nantyglo.**—STREET WORKS.—The Nantyglo and Blaina U.D.C. invite tenders for the paving, kerbing, and channelling of New Bennett-street, Blaina. Specifications, etc., at the office at Blaina of the Council's Surveyor, Mr. W. J. Davies. Deposit, £1 1s.

DECEMBER 20.—**Halifax.**—SEWERS.—The Highways Committee of the Halifax Corporation invite tenders for the construction of earthenware pipe sewers at Ovenden:—(1) Keighley-road, 24 in., 18 in., and 15 in. diameter; (2) Nursery-lane, 15 in. diameter; (3) Moor-lane, 12 in. diameter; (4) Heathy-lane, Whitehill-road, and Jammy Green, 15 in. and 12 in. diameter. Specifications, etc., of Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax. Deposit, £10.

DECEMBER 20.—**Halifax.**—STREET WORKS.—The Highways Committee of the Halifax Corporation invite tenders for the execution of private improvement works in the following streets:—(1) Holroyd-street; (2) Lansdowne-place; (3) Blenheim-street; (4) street leading from Greenlane to Dennis-court on the east side of Blenheim-street. Specifications, etc., of Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax. Deposit £1 for each set of quantities.

DECEMBER 22.—**Amble.**—PAVING.—The Amble U.D.C. invite tenders for the paving of Byron-street Back-lane and End-lane. Specifications of Mr. Wm. Burton, Surveyor, Town Hall, Amble.

DECEMBER 22.—**Finchley.**—STREET WORKS.—The U.D.C. of Finchley invites tenders for the making-up of the following private streets:—Montrose-crescent (second portion), St. Mary's-avenue, Cyprus-avenue, Holmwood-gardens, Fairlawn-avenue, and Beechwood-avenue. Quantities of the Council's Engineer and Surveyor, Mr. C. J. Jenkin, M.Inst.C.E., Council Offices, Church End, Finchley, N. Deposit, £3.

DECEMBER 22.—**Litherland.**—STREET WORKS.—The U.D.C. invite tenders for the following works:—Making and completing portion of Laburnum-grove; also the reconstruction of the passages, rear Nos. 1-29, Lily-road, and Nos. 2-30, Violet-road; also the passage rear Nos. 31-49, and stable, Lily-road, and Nos. 32-64, Violet-road. Specification of Mr. A. H. Carter, Surveyor, Public Offices, Sefton-road, Litherland. Deposit, 10s. 6d.

DECEMBER 22.—**Southgate.**—STREET WORKS.—The U.D.C. of Southgate invite tenders for the execution of works of private street improvement at Amberley-road and St. George's-road, Southgate. Specification of the Council's Surveyor, Mr. C. G. Lawson, C.E., Council's Offices, Palmer's Green, N. Deposit, £2.

DECEMBER 22.—**Walthamstow.**—DRAINAGE.—The Trustees of the Walthamstow Parochial Charities invite tenders for drainage and other works at Bromham Lodge, Higham-hill. Specification, etc., of Mr. W. Houghton, surveyor, 58, Old Broad-street, E.C.

DECEMBER 23.—**Oldham.**—PLUMBING.—The Surveyor's and Buildings Committee invite tenders for plumbing work in connection with water-closets, latrines, etc. Particulars at the Borough Surveyor's Office.

DECEMBER 27.—**Wells.**—TARRING.—The Somerset C.C. invite tenders for surface tarring on main roads at various places in the county during the year 1914. Specifications of Mr. H. T. Chapman, County Surveyor, County Surveyor's Office, Wells.

* DECEMBER 30. — **Bromley.** — STREET IMPROVEMENT. — The Bromley B.C. invite tenders for carrying out works of street improvement.

JANUARY 3, 1914.—**Stretford.**—SEWER.—The Stretford U.D.C. invite tenders for the construction in and near Chester-road, Stretford, of a storm sewer and channel, near a mile long, in brickwork and concrete tubes, from 3 ft. to 5 ft. diameter, and contingent work. Specification, etc., of Mr. Ernest Worrall, the Council's Surveyor, Old Trafford.

JANUARY 8.—**Mullingar.**—SEWERAGE WORKS.—The time for tendering for the works given in last week's issue has been extended to January 8 from December 18.

NO DATE.—**Batley.**—SANITARY.—The Batley Co-operative Society, Ltd., invite tenders for the conversion of eight privies into water-closets at the Society's Crescent-street property; also for paving work at Beck-lane property. Specifications of Mr. J. T. Wilman, Secretary.

NO DATE.—**Birkenshaw.**—ROAD WORKS.—For road metalling, kerbing, etc., at Birkenshaw. Quantities of Mr. Edgar H. Parkinson, architect, Queensgate-chambers, Bradford.

Public Appointments.

* DECEMBER 17.—ARCHITECT.—The Wallasey B.C. invite applications for the above post.

* DECEMBER 20.—HANDICRAFT INSTRUCTOR.—The London C.C. invite applications for the above post. Salary, £100.

Auction Sale.

* DECEMBER 16.—**New North-road, N.**—Mr. H. W. Smith will sell, on the premises, the stock and plant of a builder and contractor.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to THE BUILDER LTD., and *not* to the Editor.

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We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

[Those with an asterisk (*) are advertised in this issue.]

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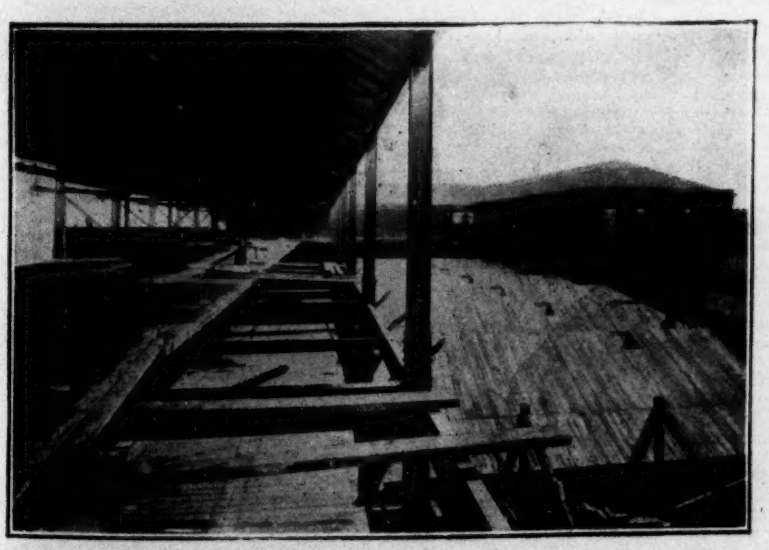

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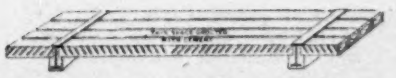

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MAGAZINES AND REVIEWS.

THE *Connoisseur* for December contains a second section of "The Noble Homes of England," which, to speak the truth, do not strike us as being very well produced or chosen. The inclusion of Highclere Castle, the seat of the Earl of Carnarvon, Rayham, Kent, that of the Most Hon. the Marquess Camden, Lambton Castle, Durham, or Holdenby, Northants, do not seem to us to be justified in an art journal, though they would deserve a place in a county guide. Mr. B. B. Colton's collection, by Mr. George Cecil, is the subject for an interesting article. The pictures of Richard Morton Page are treated by Mr. E. W. Clayton; "Marvellous Jewels of the Ancients," by Mr. Cecil Boyce; while "Notes and Queries" and "Current Art Notes" complete the number. Good reproductions in colour of Miss Martendale, by Romney, Mrs. Fitzherbert, by Gainsborough, are also given, as well as "The Copse," from a colour print by Mr. J. Witcombe.

This month's *Burlington Magazine* contains a reproduction from an hitherto unknown Velasquez, described by Beruete, of Moret, which was in Mr. Otto Beit's collection, and represents a kitchen-maid, "La Calonna Santa," by Alice Baird; "The Prayer Book of a Saint," by Morton Bernath; "Giovanni Battista Piranesi," being some further notes and a list of his works by Mr. Arthur M. Hind, which is illustrated by a reproduction of a fine etching of the foundations of the Mausoleum of Halicarnassus, from the Antechita Romane; an article on "Byzantine Silks in London Museums," by Mr. W. R. Lethaby; the thirteenth article on "Early Furniture," by Mr. Aymer Vallance; "The Inscribed Vase of the Dana Collection," by Mr. Francis Stewart Kershaw; and a continuation of Mr. K. A. Cresswell's article on "The Origin of the Persian Double Dome" follows; while Sir Claude Phillips's article on "Some Portraits by Cariani"; the Philharmonic Society's "Bust of Beethoven," by Mr. Edward Speyer; a notice of Art in France; and "Notes" complete the issue.

Harper for December (the Christmas issue) is a good number, containing several interesting stories and poems and some good illustrations, but the only item of immediate interest to our readers is Mr. Richard Le Gallienne's "Pilgrimage to Arles," with excellent illustrations by Mr. George H. Shorey. The article is a well-written, gossipy account of a recent visit to Arles, and gives the author's impressions, as in the following passage:—

> And in Arles is gathered up, as in some solemn, lovely flower, all the evocative perfume of the Provençal past. Some places are like isolated pages of the past torn from their context, but in Arles we have the whole volume, in Arles alone is concentrated the whole long, many-chaptered history of Provence. It is written in a continuity of ancient stone, it hangs in its atmosphere as, in an old church, seem to hang suspended whole centuries of prayer—it is even written in the faces of its youngest women.

The *Architectural Record* (New York) for December is entitled the "Pacific Coast Number," and contains an unusually large amount of interesting matter, to some of which we shall make further reference next week. The first article gives an account of the Country House in Californa, mostly of the one-storied type, many of which are admirable essays in Renaissance design. The Garden Apartments of California, a typical and local development, are treated in an article by Mr. E. M. Roarbaen. "The Outlook and Inlook Architectural" is the subject of an address by Mr. John Galen Howard, read before the National Institute of Arts and Letters of New York. "The Design of Certain Church Edifices" is illustrated by the Church of Christ Scientist, Los Angeles, an unusually interesting structure; and "Some Recent California Architecture" concludes a number of much variety.

The December issue of the *Engineering Magazine* (New York) is a strong number, containing articles on "The Pan-American Railroad," by Mr. Edward Perry; "Lifting the Quebec Bridge," by Mr. H. F. Stratton; "Motor Trucks for Mining Work," by Mr. R. W. Hutchinson, jun.; "The Purchasing Department," by Mr. A. C. Ward; "Experiences in Efficiency," by Mr. B. A. Franklin, dealing with the advantage of a cost system, in which the author says:—"It is true that the complete facts of the business can be shown in any way desirable; that complete and practically accurate records of the use of material, labour, and expense can be gathered; that it can be done with no great expenditure of clerical labour; and that it is very profitable to do so. But those who have no theoretical doubt of this still find many difficulties in a practical attainment, and perhaps the story of the introduction, development, and use of a cost system in a plant already successful may be of interest as illustrating this." The system is then described.

Concrete and Constructional Engineering announces in the December number a competition for labourers' cottages. The issue further contains articles by Mr. Harold Holt on "Concrete in Cotton Mills"; illustrated descriptions of a reinforced concrete dome in Melbourne, and a washery for the Silkstone Collieries, Ltd. The second Report of the Institution of Civil Engineers regarding reinforced concrete is fully dealt with. Other interesting matter is contained under the headings "Recent Views" and "New Works."

SURVEY OF THE MEMORIALS OF GREATER LONDON.

THE sixth annual meeting of this Society was held at Crosby Hall on Thursday last week, when the Rt. Hon. Earl Curzon, the President of the Society, took the chair. In moving the adoption of the Report, he said that London was a great historical monument, not a mere aglomeration of bricks and mortar. Many people were interested in London on historical grounds. Some turned their attention to Roman remains, others to the future in dreams of noble planning; but this Society pursued a different line. Their purpose was to register and record, and, where possible, preserve the memorials of the past, which were vanishing with a rapidity truly alarming. It was terrible to think what they had lost during the last thirty years, sometimes for industrial or sanitary reasons, sometimes in mere heedless vandalism. The jerrybuilder and the unskilled renovator were, he felt, the worst of human criminals. And the process was still going on on a smaller and perhaps less crude scale. But if the exteriors of buildings were spared their interiors were often destroyed. A "Tudor room" or a "Georgian staircase" could be purchased in any antiquity shop; and when torn from their setting he felt these things lost their value. He was not sure that the growth of the cult of the antique was not a danger. Dealers were destroying the setting to put objects before their patrons. There was, therefore, he thought, an increasing need for a society to record and preserve.

They had joined hands with the London Society, using the same offices and staff, a course which resulted in practical economy. The London Society was devoted to the future they to the past. Their record work included the publication of monographs on special buildings and surveys of the parishes of London, which, when completed, would form a work of high permanent value and great historic interest. Incidentally the Committee had been able to save many buildings from destruction.

On the financial side their position was not quite so strong. The amount received from subscriptions was only £316 10s. 9d. He would like to see 3,000 subscribers and a commensurate income. He took this opportunity of appealing to the Press to use their efforts to make the Society more widely known. Their efforts neither overlapped nor in any way interfered with those of any other society in London.

Mr. C. R. Ashbee then rose in support, and told the story of an incident which led to the foundation of the Society. Twenty-one years ago, he said, he heard that an old house at Bromley, which belonged to the London School Board, was sold for £20 to be broken up. He paid a visit to the spot, and, seeing a workman in the act of swinging his pick to put it through a fine plaster ceiling, was so enraged at this act of vandalism that he called to the man to come down, gave him sixpence to go and drink beer, and hastily wrote to the Press. In the absence of any particular sensation at the moment his letter attracted attention, and eventually one room in the house was bought back by the School Board for £200, and can now be seen at South Kensington. In conclusion, he urged a more fighting spirit. He thought the public liked it, and that some forms of militancy—not all—were really useful.

Mr. Philip Norman then showed an interesting series of lantern slides illustrative of survey and record work, a feature of the Society's activity, which was also emphasised by a collection of measured drawings and photographs exhibited on screens during the afternoon.

LAW REPORTS.

OFFICIAL REFEREE'S COURT.
(Before Mr. MUIR MACKENZIE.)

Holbrook *v.* Isaac:
Judgment for a Building Owner.

JUDGMENT was given by Mr. Muir Mackenzie in an action in which Mr. Arthur Edward Holbrook, a builder and contractor, of Lenton, Nottingham, claimed £260 from the defendant, Mr. Bernard A. Isaac, of Ovington-gardens, London, in respect to repairs and decorations the plaintiff had carried out at the defendant's bungalow at Farndon, on the banks of the Dee, in Cheshire.

Mr. Maddocks appeared for the plaintiff, and Mr. Livingstone and Mr. Latter represented the defendant.

The Official Referee, delivering judgment, said that the defendant obtained and accepted a tender from the plaintiff for the carrying out of alterations, decorations, and enlargements of the bungalow, for the sum of £260. The plaintiff had finished the work, but the defendant had refused to pay on the ground that the work had not been carried out in accordance with the terms of the contract. Plaintiff had issued a writ, describing his claim as being per estimate delivered in November, 1912, and accepted by the defendant. The Referee said he found that certain of the work was not carried out in a workmanlike manner. The question was whether upon this finding defendant could maintain a defence for the whole of the claim. There were a series of authorities, the effect of which was that, where a contractor agreed to do specified work for a lump sum, and the work had not been done in accordance with the contract, and had not been, in fact, accepted, the plaintiff could not recover anything under the contract or upon a *quantum meruit*, and that unless there had been acceptance in fact the person for whom the work was done could not be held liable to pay the contract price. Therefore, on consideration of the law and the facts, he had no alternative than to find that the defendant was not liable to pay the £260 or any part of it. Regarding the counterclaim by the defendant, the Official Referee said that the defendant must be said to be entitled to some compensation in respect to defective work; but then, on the other hand, he (the Official Referee) thought the defendant had got the benefit of some very substantial work by the plaintiff, and, therefore, he did not see his way to award the defendant any sum out of the plaintiff's pocket with regard to the alleged damage. His decision was that there must be judgment entered for the defendant in the action with costs, and dismissing the counterclaim without any costs attributable to the counterclaim as distinguishable from the defence.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.	£	s.	d.
Best Stocks	1	16	6
Picked Stocks for Facings	2	10	0

Per 1000, Delivered at Railway Depôt.	£	s.	d.		£	s.	d.
Flettons	1	14	0	Best Blue Pressed Staffordshire	3	15	0
Best Fareham Red	3	12	0	Do. Bullnose	4	0	0
Best Red Pressed Ruabon Facing	5	0	0	Best Stourbridge Fire Bricks	4	0	0
GLAZED BRICKS—							
Best White, Ivory, and Salt Glzd Str'tch'rs	12	7	6	Double Headers	14	17	6
Headers	11	17	6	One Side and two Ends	18	17	6
Quoins, Bullnose and 4½ in. Flats	15	17	6	Two Sides and one End	19	17	6
D'bleStr'tch'rs	17	17	6	Splays and Squints	17	7	6

Second Quality £1 10s. per 1000 less than best.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	9	" "
Best Portland Cement	37	0	per ton, "
Best Ground Blue Lias Lime	20	0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

BRICKS, &c. (*Continued*).

Grey Stone Lime ..... 14s. 0d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

Per Ft. Cube.

	s.	d.
BATH STONE — Delivered on road waggons, Paddington Depôt	1	7½
Do. do. Delivered on road waggons, Nine Elms Depôt	1	9½
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, Delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	4½
White Basebed, Delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	6½

Per Ft. Cube, delivered at Railway Depôt.

	s.	d.		s.	d.
Ancaster in blocks..	1	10	Closeburn Red Freestone	2	0
Beer in blocks	1	6			
Greenshill in blocks	1	10	Red Mansfield Freestone	2	4
Darley Dale in blocks	2	4	Talacre & Gwespyr Stone	2	4
Red Corsehill in blocks	2	3			

YORK STONE—*Robin Hood Quality*.

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Per Ft. Cube, Delivered at Railway Depôt. Scappled random blocks	2	10
Per Ft. Super., Delivered at Railway Depôt. 6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto, ditto	2	6
3 in. sawn two sides slabs (random sizes)	0	11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7
1½ in. to 2 in. ditto, ditto	0	6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt. Scappled random blocks	3	0
Per Ft. Super., Delivered at Railway Depôt. 6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto	3	0
3 in. sawn two sides slabs (random sizes)	1	2
2 in. self-faced random flags	0	5

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20 x 10 best blue Bangor	13	2	6	20 x 10 best Eureka unfading green..	15	17	6
20 x 12 ditto ..	13	17	6	20 x 12 ditto ..	18	7	6
20 x 10 1st q'lity ditto	13	0	0	18 x 10 ditto ..	13	5	0
20 x 12 ditto ..	13	15	0	16 x 8 ditto ..	10	5	0
16 x 8 ditto ..	7	5	0	20 x 10 permanent green	11	12	6
22 x 10 best blue Portmadoc ..	12	12	6	18 x 10 ditto ..	9	12	6
16 x 8 ditto ..	6	12	6	16 x 8 ditto ..	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000) ..	42	0	Best "Hartshill" brand, plain sandfaced (per 1000) .	45	0
Hip and Valley (per doz.) ..	3	7	Do. pressed (per 1000)	42	6
Best Broseley (per 1000)	50	0	Do. Ornamental (per 1000)	47	6
Do. Ornamental (per 1000)	52	6	Hip (per doz.) .	4	0
Hip and Valley (per doz.) ..	4	0	Valley (perdoz.)	3	6
Best Ruabon red, brown, or brindle (Edw'ds)(pr1000)	57	6	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. Ornamental (per 1000)	60	0	Hand-made sandfaced (per1000)	45	0
Hip (per doz.) .	4	6	Hip (per doz.) .	4	0
Valley (per doz.)	3	0	Valley (per doz)	3	6

WOOD.

BUILDING WOOD.	At per standard.					
	£	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in...	15	0	0 ..	16	10	0
Deals: best 3 in. by 9 in.....	15	0	0 ..	16	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	12	10	0 ..	13	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best		
Battens: seconds	0	10	0	"	"	
2 in. by 4 in. and 2 in. by 6 in.	11	10	0 ..	12	10	0
2 in. by 4½ in. and 2 in. by 5 in.	10	10	0 ..	11	10	0
Foreign Sawn Boards—						
1 in. and 1½ in. by 7 in.....	0	10	0	more than battens.		
¼ in.	1	0	0	"		
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft.					
	5	0	0 ..	6	5	0
Seconds	4	10	0 ..	5	0	0
Small timber (8 in. to 10 in.)	3	17	6 ..	4	0	0
Small timber (6 in. to 8 in.)	3	5	0 ..	3	10	0
Swedish balks	2	12	6 ..	3	0	0
Pitch-pine timber (30 ft. average)	6	0	0 ..	7	0	0
JOINERS' WOOD.	At per standard.					
White Sea: first yellow deals, 3 in. by 11 in.....	26	0	0 ..	27	0	0
3 in. by 9 in.	24	0	0 ..	25	0	0
Battens, 2½ in. and 3 in. by 7 in.	18	10	0 ..	19	10	0
Second yellow deals, 3 in. by 11 in.	21	10	0 ..	22	10	0
" " 3 in. by 9 in.	20	0	0 ..	21	0	0
Battens, 2½ in. and 3 in. by 7 in.	15	0	0 ..	16	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	16	0	0 ..	17	0	0
Battens, 2½ in. and 3 in. by 7 in.....	14	0	0 ..	15	0	0

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—	At per standard.					
	£	s.	d.	£	s.	d.
Petersburg: first yellow deals, 3 in. by 11 in.....	23	0	0 ..	24	0	0
Do. 3 in. by 9 in.	20	0	0 ..	21	0	0
Battens	15	0	0 ..	16	0	0
Second yellow deals, 3 in. by 11 in.	17	10	0 ..	18	10	0
Do. 3 in. by 9 in.....	16	0	0 ..	17	0	0
Battens	12	10	0 ..	13	10	0
Third yellow deals, 3 in. by 11 in.	14	0	0 ..	15	0	0
Do. 3 in. by 9 in.....	13	10	0 ..	14	10	0
Battens	11	10	0 ..	12	10	0
White Sea and Petersburg—						
First white deals, 3 in. by 11 in.	16	10	0 ..	17	10	0
First white deals, 3 in. by 9 in.	14	10	0 ..	15	10	0
Battens	13	0	0 ..	13	10	0
Second white deals, 3 in. by 11 in.	14	10	0 ..	15	10	0
Second white deals, 3 in. by 9 in.	13	0	0 ..	14	0	0
Battens	12	0	0 ..	12	10	0
Pitch-pine: deals	25	0	0 ..	26	10	0
Under 2 in. thick extra....	0	10	0 ..	1	0	0
Columbian or Oregon Pine, best quality.....	23	10	0 ..	26	0	0
Yellow Pine—First, regular sizes	50	0	0	upwards.		
Oddments	35	0	0	"		
Seconds, regular sizes.....	36	0	0	"		
Oddments	31	0	0	"		
Kauri Pine—Planks per ft. cube	0	5	6 ..	0	6	6
Danzig and Stettin Oak Logs—						
Large, per ft. cube.....	0	3	0 ..	0	3	9
Small " "	0	2	6 ..	0	3	0
Wainscot Oak Logs, per ft. cub	0	7	6 ..	0	9	0
Dry Wainscot Oak, per ft. super. as inch	0	0	10 ..	0	1	2
¾ in. do. do.....	0	0	9 ..	0	1	0
Dry Mahogany — Honduras, Tabasco, per ft. super. as inch	0	0	10 ..	0	1	3
Selected, Figury, per ft. super. as inch	0	1	6 ..	0	2	6
Cuba Mahogany	0	1	4 ..	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10 ..	upwards. 0	1	2
French, "Italian," Walnut ..	0	0	10 ..	0	1	4
Teak, per load (Rangoon or Moulmein)	20	10	0 ..	26	0	0
Do., do. (Java)	19	0	0 ..	22	10	0
American Whitewood planks, per ft. cube	0	5	6 ..	0	6	6
Prepared Flooring, etc.—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	14	6 ..	0	18	0
1 in. by 7 in. yellow, planed and matched	0	14	9 ..	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	17	6 ..	1	3	0
1 in. by 7 in. white, planed and shot	0	14	0 ..	0	16	0
1 in. by 7 in. white, planed and matched	0	14	3 ..	0	16	6
1¼ in. by 7 in. white, planed and matched	0	16	6 ..	0	8	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed boards.....	0	12	6 ..	0	15	0
1 in. by 7 in. " "	0	15	0 ..	0	18	6
¾ in. by 7 in. white " "	0	12	0 ..	0	14	0
1 in. by 7 in. " "	0	14	6 ..	0	16	6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London or delivered Railway Vans, per ton.					
	£	s.	d.	£	s.	d.
Rolled Steel Joists, ordinary sections	9	0	0 ..	10	0	0
Compound Girders, ordinary sections	11	0	0 ..	12	0	0
Steel Compound Stanchions..	12	0	0 ..	13	0	0
Angles, Tees, and Channels, ordinary sections.....	11	0	0 ..	12	0	0
Flitch Plates	11	0	0 ..	12	0	0
Cast Iron Columns & Stanchions, including ordinary patterns	8	10	0 ..	9	0	0

METALS.

	Per ton, in London.					
	£	s.	d.	£	s.	d.
IRON—						
Common Bars	9	0	0 ..	9	10	0
Staffordshire Crown Bars, good merchant quality ..	9	5	0 ..	9	15	0
Staffordshire "Marked Bars"	11	0	0 ..		—	
Mild Steel Bars	9	5	0 ..	9	15	0
Hoop Iron, basis price	10	0	0 ..		—	
" Galvanised	17	10	0 ..		—	
" " (* And upwards, according to size and gauge.)						
Sheet Iron Black—						
Ordinary sizes to 20 g.	10	5	0 ..		—	
" " 24 g.	11	5	0 ..		—	
" " 26 g.	12	15	0 ..		—	
Sheet Iron, Galvanised, flat, ordinary quality—						
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	10	0 ..		—	
Ordinary sizes to 22 g. and 24 g.	16	0	0 ..		—	
Ordinary sizes to 26 g.	17	0	0 ..		—	
Sheet Iron, Galvanised, flat, best quality—						
Ordinary sizes to 20 g.	18	10	0 ..		—	
" 22 g. and 24 g.	19	0	0 ..		—	
Ordinary sizes to 26 g.	20	10	0 ..		—	
Galvanised Corrugated Sheets—						
Ordinary sizes, 6 ft. to 8 ft. 20 g.	15	0	0 ..		—	
Ordinary sizes, 22 g. and 24 g.	15	5	0 ..		—	
Ordinary sizes, 26 g.	16	15	0 ..		—	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	10	0 ..		—	

METALS (*Continued*).

IRON (*Continued*)—	Per ton, in London.					
	£	s.	d.	£	s.	d.
Best Soft Steel Sheets, 22 g. & 24 g.	13	10	0 ..		—	
Best Soft Steel Sheets, 26 g...	15	10	0 ..		—	
Cut Nails, 3 in. to 6 in.....	11	0	0 ..	11	10	0
(Under 3 in., usual trade extras.)						

LEAD, &c.

Delivered in London.

	£	s.	d.			
LEAD—Sheet, English, 4 lb. and up	21	15	0 ..		—	
Pipe in coils.....	22	5	0 ..		—	
Soil pipe	25	5	0 ..		—	
Compo pipe	25	5	0 ..		—	
ZINC—Sheet—	In casks of 10 cwt.					
Vielle Montagne	28	5	0 ..		—	
Silesian	28	10	0 ..		—	
Zinc, in bundles, 1s. per cwt. extra.						
COPPER—						
Strong Sheet ..... per lb.	0	1	1 ..		—	
Thin " ..... "	0	1	2 ..		—	
Copper nails..... "	0	1	0 ..		—	
Copper wire..... "	0	1	0 ..		—	
BRASS—						
Strong Sheet ..... "	0	1	0 ..		—	
Thin ..... "	0	1	1 ..		—	
TIN—English Ingots .. "	0	1	11 ..		—	
SOLDER—Plumbers' .. "	0	0	10 ..		—	
Tinmen's ..... "	0	1	1 ..		—	
Blowpipe ..... "	0	1	3 ..		—	

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

15 oz. thirds	2¼d.	26 oz. fourths	3¼d.
" fourths	2d.	32 oz. thirds	5½d.
21 oz. thirds	3¼d.	" fourths	4½d.
" fourths	3d.	Fluted Sheet, 15 oz.	3d.
26 oz. thirds	4½d.	" 21 oz.	4d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

⅛ Rolled plate	2½d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white..	3½d.
⅛ Rough rolled and rough cast plate	2½d.		
¼ Rough rolled and rough cast plate..	3d.	Ditto, tinted	5d.

* Not less than two crates.

OILS, &c.		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	3
" " " in barrels	"	0	2	4
" " " in drums	"	0	2	6
Boiled " " in barrels	"	0	2	6
" " " in drums	"	0	2	9
Turpentine in barrels	"	0	2	9
" in drums	"	0	2	11
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		29	15	0
Red Lead, Dry	per ton	27	10	0
Best Linseed Oil Putty	per cwt.	0	9	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.	Per gallon. £	s.	d.
Fine Pale Oak Varnish.....	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak.....	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	9
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	6
Extra Pale French Oil.....	1	1	0
Eggshell Flating Varnish.....	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper.....	0	12	0
Best Japan Gold Size	0	10	0
Best Black Japan.....	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	6
French and Brush Polish.....	0	10	0

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 6 p.m. on *Wednesday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100l. unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ARUNDEL.—For construction of tidal arm chamber at South Marshes, for the Arundel Town Council:—
W. & C. French, Buckhurst Hill* £270

BEDFORDSHIRE.—For alterations, building new library to Burnham House, for Mr. W. H. Allen, J.P., D.L. Mr. George P. Allen, Licentiate R.I.B.A., architect, 32, Craven-street, Charing Cross:—
G. Foster, Kempston (carcase only) £700

BILLERICAY.—For infectious hospital. Mr. H. R. Bird, architect and surveyor, Brentwood:—

—	New Buildings.	Existing Buildings.
	£	£
Dowsing & Davis	5,640 0 0	590 0 0
A. G. Crisp	5,250 0 0	650 0 0
Allen Fairhead & Son	5,126 0 0	653 0 0
H. Potter	5,100 0 0	675 0 0
S. E. Moss	5,200 0 0	600 0 0
S. Cronin & Sons	5,151 0 0	591 0 0
D. Robinson	5,089 0 0	575 0 0
Walter Jones & Sons	4,990 0 0	600 0 0
J. Jarvis & Sons, Ltd.	4,975 0 0	600 0 0
Parren & Son	4,969 0 0	537 0 0
F. W. Jarvis	4,869 0 0	565 0 0
Harris Bros.	4,709 0 0	567 0 0
A. G. Brown	4,650 0 0	594 0 0
H. Smith	4,673 0 0	580 0 0

[Architect's approximate estimate, £5,279.]

BILLERICAY.—For erection of isolation hospital, for the Rural District Council:—
Harris Bros., Billericay* £5,250

CHELMSFORD.—For renovating vestibule at the Shire Hall, for the Essex Standing Joint Committee:—
Hawkins & Ward, Chelmsford* £158

DURHAM.—For making up streets at Neville Cross, for the Durham Rural District Council:—
J. Carrick, Durham,* £367 18s. 3d. for George-street, and £177 1s. 11d. for Back George-street.

FELIXSTOWE.—For building and equipping bath-houses in Cage-lane, Walton, for the Felixstowe Urban District Council:—
Parker Bros.* £416

FELIXSTOWE.—For building convenience in High-street, Walton, for Felixstowe Urban District Council:—
Parker Bros* £179

HANLEY.—For heating, etc., installation at Glass-street new centre, for Stoke-on-Trent Education Committee:—
G. N. Haden & Sons* £241 15

HARWICH.—For new police headquarters, for the Essex Standing Joint Committee:—
E. Saunders* £1,692

LONDON.—For redecorations, etc., to ward, and sanitary fittings, etc., to annexes, at the Mile End Infirmary, Bancroft-road, E., for the Guardians of Mile End Old Town. Mr. Edmund J. Harrison, architect, 9, Gray's Inn-square, W.C.:—

A. Pullen & Co.	£750 0	W. S. Sharpin	£586 0
W. Gibbons	747 0	W. Smith & Co.	573 0
E. Burnes & Co	735 0	A. Ferguson & Co.	563 0
A. J. Ware, Ltd.	693 0	C. I. Kemp	550 0
W. Dallinger	682 15	A. J. Wick, Walthamstow*	524 10
F. & F. J. Wood	643 0		
J. Stokes & Sons	628 10		

LONDON.—For the erection of an elementary school for 996 children in Derinton-road, Wandsworth, for the London County Council:—

Leslie & Co., Ltd.	£26,783	G. E. Wallis & Sons, Ltd.	£23,541
F. & T. Thorne	25,332	J. Smith & Sons, Ltd.	22,845
W. Smith & Son	24,829	J. & C. Bowyer, Ltd.	22,659
W. Akers & Co., Ltd.	24,594	W. Lawrence & Son, 21, Finsbury-circus*	22,172
J. Longley & Co.	24,240		
W. King & Son	23,992		
J. Garrett & Son	23,862		
Holliday & Greenwood, Ltd.	23,772		

LONDON.—For cleaning Montem-street School, Islington, for the London County Council:—

J. C. Mather	£733 0
McCormick & Sons, Ltd.	685 10
Patman & Fotheringham, Ltd.	677 0
J. Waddington & Sons, Ltd.	673 0
Stevens & Sons	633 0
C. H. Price	612 10
Marchant, Hirst, & Co., 136, Highgate-road*	563 0

LONDON.—For alterations and additions to Tidal Basin-road, for Messrs. W. H. Allen, Son, & Co., engineers, Bedford. Mr. George P. Allen, Licentiate R.I.B.A., architect, 32, Craven-street, Charing Cross:—
F. Smith & Sons, Ltd., Abchurch-lane, E.C. ... £350

LONDON.—For reconstructing drains at Netherwood-street School, Hampstead, for the London County Council:—

B. Finch & Co., Ltd.	£2,100	W. King & Son	£1,710
W. Beattie	1,881	I. C. Tennant & Co.	1,698
G. S. S. Williams & Son	1,801	Stevens & Sons	1,688
F. Smith & Co.	1,789	W. S. Barton & Co., 43, Chancery-lane*	1,597

LONDON.—For the remodelling of the Bonner-street School, Bethnal Green, N.E., for the London County Council:—

F. & T. Thorne	£15,525 0 0
G. E. Wallis & Sons, Ltd.	13,898 0 0
McCormick & Sons, Ltd.	12,959 0 0
T. D. Long	12,810 0 0
W. Moss & Sons, Ltd.	12,108 3 7
J. Willmott & Sons	12,056 0 0
J. Chessum & Sons	12,048 19 0
C. P. Roberts & Co., Ltd., 36, Tyssen-street, Dalston*	11,425 0 0

NUNEATON.—For sewage work at Arley, for Nuneaton Rural District Council:—
J. G. Trentham & Sons, Birmingham* ... £3,000

RATTLESDEN.—For erecting six cottages at Rattlesden, for the Thedmastre Rural District Council:—
Plummer, Rattlesden* £1,063

ST. AUSTELL.—For Poltau Estate drainage work, for the Rural District Council:—
J. Riley* £156

SOUTH MOLTON (Devon).—For alterations, additions, and decorations to East Johnstone, for Mr. Harry Sanders. Mr. George P. Allen, Licentiate R.I.B.A., 32, Craven-street, Charing Cross:—
Woolaway & Sons, Barnstaple £450

TEIGNMOUTH.—For widening of Bishopsteignton-road and Mill-lane, for the Urban District Council:—
Marcus Bridgman, Paignton* £1,929

THEDWASTRE.—For erection of cottages at Combs, Old Newton, and Wetherden, for the Thedwastre Rural District Council:—
E. C. Melton, Shelford,* two pairs of cottages at Wetherden, £1,220 16s.; fencing, £30. Four pairs of cottages at Old Newton, £1,800; fencing, £70. Five pairs of cottages at Combs, £2,600; fencing, £156.

WALTHAMSTOW.—For drainage and surfacing to playground, Pretoria-avenue Schools, for the Education Committee. Mr. H. Prosser, M.S.A., Architect to the Committee:—

A. G. Barton	£335 0 0	E. Fuller & Son	£290 0 0
G. M. Page	327 3 5	J. & J. Dean	289 0 0
J. Sands	298 10 0	D. W. Lucas*	269 0 0

[All of Walthamstow.]

WALTHAMSTOW.—For sundry improvements to the Forest-road Boys' and Girls' Schools, for the Education Committee. Mr. H. Prosser, M.S.A., Architect to the Committee:—

G. M. Page	£193 18 3	J. Sands	£157 0 0
D. W. Lucas	169 0 0	E. Fuller & Son	150 0 0
A. G. Barton	165 17 6	J. & J. Dean*	147 0 0

[All of Walthamstow.]

WORTHING.—For extension of electricity generating station, for the Town Council:—
A. Crane, Worthing* £1,654 16

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